

**Plantation Pipe Line Company's Response to EPA Information Request (NRC No 1102954)****Lewis Drive**

1. Identify the oil discharged from the facility. Provide the MSDS for the oil discharged.

**Response: The product released was a mixture of gasoline and diesel fuel. The various MSDSs supplied by the shippers on Planation Pipeline have been provided.**

2. State the total volume that was discharged from the Facility. Provide the following information and produce the requested documents concerning the discharge:

(a) Identify all assumptions that were made in calculating the total volume of the discharge.

(b) Produce all documents showing how you calculated the amount of the discharge, including, but not limited to, all initial and subsequent estimates and all mathematical calculations made by you or someone on your behalf or at your direction.

**Response: The calculated volume of product that leaked from the pipeline is 8,800 barrels. The supporting calculations are provided.**

3. State the total volume that was discharged from the Facility that entered a waterbody (river, stream, lake, pond, impoundment, wetland, drainage ditch, sewer, storm drain, etc.), including a waterway that may have been dry at the time of the discharge. Provide the following information and produce the documents requested concerning the discharge:

(a) Identify the waterbody (river, stream, lake, pond, impoundment, wetland, drainage ditch, sewer, storm drain, swale, arroyo, etc.), including a waterway that may have been dry at the time of the discharge, that received the discharge.

(b) For the waterbody identified in response to 4(a), identify its downstream receiving waters.

(c) Identify all assumptions that were made in calculating the total amount of this discharge to the waterbody.

(d) Produce all documents showing how you calculated the amount of this discharge to the waterbody, including, but not limited to, all initial and subsequent estimates and all mathematical calculations made by you or someone on your behalf or at your direction.

**Response: The specific total volume that ultimately may have migrated to Brown's Creek is not known. Be advised the product leaked from the pipeline into the groundwater prior to some limited amount of dissolved phase seeping into Brown's Creek. Additionally, Brown's Creek is also prone to develop biological sheens which are commonly mistaken by laypersons as petroleum sheens. Specific Responses to (a),**

(b), (c), and (d) follow.

**Response (a):** See Figure 17 in the Revised Comprehensive Site Assessment Report, dated September 2016, submitted herewith which illustrates the location of the Brown's Creek.

**Response (b):** Brown's Creek flows to Broadway Lake, more than 10 miles downstream.

**Response (c):** Total released and recovered volumes were calculated and responsive information is provided in subsequent responses herein and the documents submitted herewith. The specific total volume that may have entered Brown's Creek has not been calculated.

**Response (d):** Total released and recovered volumes were calculated and responsive information is provided in subsequent responses herein and the documents provided herewith. The specific total volume that may have entered Brown's Creek has not been calculated.

4. For the discharges from the Facility that entered a waterbody, identify each person known to you, including persons not employed by you, who either reportedly saw or who made a determination that a film, sheen, sludge or emulsion was on or in any waterway. For each person identified, provide the following information:
  - (a) Identify the creek bed on which the film, sheen, sludge, emulsion, or free product was seen;
  - (b) State the date and time on which each person saw the film, sheen, sludge or emulsion, or free product on each waterway;
  - (c) State his/her title, business affiliation, address, and telephone numbers; and
  - (d) For those persons who made a determination that a film, sheen, sludge, emulsion, or free product was on or in the creek and/or creek bed, state the criteria the person used in making the determination and a produce a copy of any and all calculations that each person made.

**Response:** The product leaked from the pipeline, entered the groundwater, and subsequently migrated with the groundwater. A limited amount of dissolved phase may have seeped into Brown's Creek. The product did not discharge directly into any waterbody. In a report, dated January 22, 2015 (see response to Item 10), Mr. William Waldron (CH2M, contact information provided below) stated "a light sheen was identified on the north bank of Brooks Creek just east of Lewis Drive on January 19, 2015." This is the first reported sheen associated with the release. Prior to February of 2015, Brown's Creek had been misidentified as Brooks Creek. Further documentation of what PPL employees and contractors observed at the site and Brown's Creek, and when their observations were made, are included in the documents submitted herewith.

5. Describe the location of the discharge.

**Response:** The leak occurred on the 26-inch Plantation CNG pipeline, at Section 8A, Latitude 34.544428, Longitude -82.507594, adjacent to Lewis Drive, Belton, South Carolina.

6. When did the control room communicate possible problems on the pipeline?

(a) What actions did the operators take?

(b) How did the people in the control room communicate possible problems on the pipeline?

(c) How much time elapsed from the person in the control room first recognized a potential release to when Respondent first reported the problem to the National Response Center?

(d) What actions did you take after you knew of a potential problem and before you reported the discharge to the National Response Center?

**Response:** The PPL Control Center, located in Alpharetta, GA, received an initial call from Mr. Brandon Grooms, who is a right-of-row technician with Colonial Pipeline, at 16:05 est on December 8, 2014. Mr. Grooms reported dead vegetation and an odor of "diesel fuel" in area upstream of the Plantation Pipeline's Belton station, across the street from 112 Lewis Drive. The Control Center immediately shutdown the CNF line and divert the CNG pipeline. Both the CNG and CNF block valves were closed up and down stream of the point of suspected release. Equipment was mobilized to the site and excavation to pinpoint the release was initiated at 16:30 est on December 8, 2014. At 07:45 est, on December 9, 2014, the leaked was confirmed on the CNG.

The NRC was notified at 18:15 est on December 8, 2014. A detailed timeline of the Control Center's actions is provided in O & M 1100-02, the Emergency Condition Reported by Telephone form.

7. Produce all photographs, drawings, and charts (in color) electronically to [goodwin.jolm@epa.gov](mailto:goodwin.jolm@epa.gov) that are in your possession relating to the discharge from the Facility, including, but not limited to:

(a) The path of the discharge from the Facility to a waterway;

(b) The creek bed and the soils impacted;

(c) All cleanup activities; and

(d) All fish, birds, or other species seen in the area around and adjoining the area where the discharge occurred.

**Response: Photographs of the pipeline excavation and repair are provided. See also documents provided in response to Item 10 for drawings and charts.**

8. To your knowledge, do other persons have copies of photographs, drawings, or charts relating to the discharge from the Facility that the EPA has requested you to produce in response to question 7? If your answer is yes, identify all persons, including each person's title, company affiliation, address, and telephone number.

**Response: SCDHEC personnel have copies of materials; see Item 18 for SCDHEC contact information. PPL has provided copies of the pictures taken by its consultant, CH2M.**

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Joseph K. Qualey, Esq.  
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**Upstate Forever & Savannah Riverkeepers  
Chris DeScherer  
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**Bill Waldron, Project Manager  
Scott Powell, Project Engineer  
CH2M  
3120 Highwood Blvd  
Suite 214  
Raleigh, NC 27604  
919-875-4311**

9. Provide the number of trees that were cut during the spill response and the approximate diameter of each at breast height.

**Response: An exact number is unknown. However, the majority of the vegetation removed consisted of scrub brush and small saplings having a breast height diameter less than 2-inches. The estimated number of trees removed with breast height trunk diameters between 2 and 6-inches removed is estimated to be ten. Approximately five trees were removed with approximate breast height diameters between 7 and 12-inches. One tree with an approximate breast height diameter of 18-inches was removed near**



recovery well RW-14.

10. Describe the cleanup actions you took as a result of the discharge from the Facility and produce electronically to [goodwin.john@epa.gov](mailto:goodwin.john@epa.gov) a copy of all documents, including photographs (in color), provided to you by the contractors or sub-contractors that describe or show all cleanup activities performed.

**Response:** As a result of the spill, PPL installed ten temporary groundwater monitoring wells were installed within the first week of discovery of the release. Eighteen product recovery sumps were also installed. In response to the potential impacts to Brown's Creek, PPL installed an additional sump, two product recovery trenches, and 17 booms in Brown's Creek to prevent any potential contamination from moving downstream.

As of July 2016, PPL has installed 98 temporary monitoring wells, 20 product recovery sumps, 15 recovery wells, two product recovery trenches, and 17 absorbent booms. Weekly recovery of product is on-going at the site and surface water samples are collected and analyzed monthly at multiple locations along Brown's Creek. PPL has submitted periodic monitoring reports to SCDHEC since response actions began. Please see Table 1, Chronology of Site Assessment Tasks in the Revised Comprehensive Site Assessment Report, dated September 2016, for specific details.

On September 2, 2016, PPL submitted a Corrective Action Plan (CAP). The CAP proposed the use of biosparging technology to clean up groundwater at the site, in addition to continued petroleum product removal, and perform routine monitoring of surface water and groundwater. Biosparging is one method of bioremediation commonly used to clean up underground petroleum contamination. It involves injecting air into the ground to promote breakdown of the petroleum products into gases (carbon dioxide) and water. Weekly recovery of product is on-going at the site and surface water samples are collected and analyzed monthly at multiple locations along Brown's Creek. The CAP was published for public comments between October 21, 2016 and December 6, 2016.

On February 24, 2017, PPL submitted the "Startup Plan for Surface Water Protection Measures: Revision 2", which describes the process for operating the groundwater cleanup system and monitoring the petroleum removal. The Startup Plan includes the operation of a biosparging system in the areas of Brown's Creek and Cupboard Creek, and a stream aeration system in Brown's Creek, as well as air, surface water, and groundwater monitoring in both areas. SCDHEC reviewed the "Startup Plan for Surface Water Protection Measures: Revision 2" and granted approval on March 1, 2017. PPL began full operations of this system on March 6, 2017. Monitoring and assessment will continue after remediation has been completed.

11. State the total costs that you incurred in conducting the cleanup actions. If you do not know the total final costs, state when you expect to know the final costs, and provide an estimate of the total costs expected to be incurred.

**Response:** Total forecasted costs for the project are expected to be approximately \$9.5 million. The following table breaks down actual and forecasted costs:

<b>Category</b>	<b>Amount</b>
Pipeline Repairs (2014)	715,892
Emergency Response (2014 to March 2015)	383,630
Remedial Investigation (through 2015)	1,125,113
Corrective Action Design and Implementation (2016)	4,760,337
<b>Total costs incurred through 2016:</b>	<b>6,984,971</b>
2017 forecast	500,000
2018 forecast	500,000
2019 forecast	500,000
2020 forecast	500,000
2021 forecast	500,000
<b>Total forecasted project cost:</b>	<b>9,484,971</b>

12. State the volume of soil and and/or water removed as part of the cleanup efforts you conducted.

**Response:** 2,832 tons of soil were excavated and transported for off-site disposal. Approximately 566,000 gallons of product and water have been collected at the site through March 2, 2017. Approximately 39% of that collected is product (218,000 gallons).

13. Have you received a notice of violation and/or penalty assessment, letter or had verbal communication with a federal, state or local authority indicating that a penalty may be assessed against you as a result of the discharge from the Facility? If your answer is yes, provide the following information and produce the documents requested concerning the discharge:

- (a) Produce all documents you have received from, or you have sent to, the federal, state or local authority, including, but not limited to, documentation showing the amount of any penalty assessed, the amount of penalty you have paid, and settlement agreements.
- (b) Identify each person who spoke with the federal, state or local authority on your behalf and the person speaking on behalf of the federal, state or local authority. State the title, address, business affiliation, and telephone numbers of each person identified.

**Response:** Plantation Pipe Line has had significant communication with SCDHEC since the release was first discovered and remedial effort began. See Item 10 for relevant documents. SCDHEC has not initiated any actions to assess a penalty. However, a citizen suit complaint alleging violations of the Clean Water Act was filed by Southern Environmental Law Center and Riverkeepers seeking civil penalties. SCDHEC has refused to join this action. The Notice of Intent letter and the Complaint have been provided. See also Item 8 for the complaint's contact information.

**Plantation Pipe Line is represented by:**

**Ricard E. Morton, Esq.  
Womble Carlyle Sandridge & Rice, LLP  
One Wells Fargo Center  
Suite 3500, 301 South College Street  
Charlotte, NC 28202-6037  
704-331-4993**

14. Provide a list of all property, casualty and/or liability insurance policies, and any other insurance contracts (including, but not limited to, Environmental Impairment Liability, Pollution Legal Liability, Cleanup Cost Cap or Stop Loss Policies, Institutional Controls and Post Remediation Care Insurance) that provided coverage for the discharge from the Facility and were in effect at the time of discharge. Include, without limitation, all primary, excess, and umbrella policies, and provide per occurrence policy limits for each policy. For each company identified, produce a copy of all claims or other documentation that you have submitted to each insurer for reimbursement or payment regarding the discharge from the Facility, including amount of product lost and the estimated value of the product lost.

**Response: Response: PPL has not made a demand upon these insurers for reimbursement. Our costs to date have not exceeded our primary \$10MM self-insured retention. A list of the policies has been provided.**

15. Answer the following questions about the discharge from the Facility:

- (a) Explain why the discharge occurred and how it occurred.
- (b) Identify the person who first saw the discharge and state the date and time on which that person became aware of the discharge.
- (c) Identify the person who first reported the discharge to you and state the date on which the discharge was first reported to you and to whom it was reported.
- (d) Provide a copy of the accident report (7000-1 report) that the owner and/operator filed with the Office of Pipeline Safety and the metallurgic report, including the lab analysis of the pipe or equipment that failed.
- (e) Provide a copy of the most recent internal pipeline inspection and report prior to the discharge date for the section of the pipeline that discharged the oil.
- (f) Provide a copy of the most recent right of way report prior to the discharge date for the section of the pipeline that discharged the oil.
- (g) Were any fish, birds, turtles, or other aquatic species found dead in the area where the

discharge occurred? If your answer is yes, identify all fish, birds, or other species that were found dead, the number found dead, and produce all documents, documents or photographs (in color) that refer to, reflect, or evidence the fish, birds, turtles, or other aquatic species found dead and produce electronically to [goodwin.john@epa.gov](mailto:goodwin.john@epa.gov).

**Response:** The source of the leak was a longitudinal crack in the shoulder of the dent under a type A-sleeve repair. The PPL Control Center, located in Alpharetta, GA, received an initial call from Mr. Brandon Grooms, who is a right-of-row technician with Colonial Pipeline, at 16:05 est on December 8, 2014. Mr. Grooms reported dead vegetation and an odor of "diesel fuel" in area upstream of the Plantation Pipeline's Belton station, across the street from 112 Lewis Drive.

The 7000-1 reports are provided (Initial, Supplemental, and Final). The 2001 Inspection Survey Final report for Bremen to Spartanburg which includes the release site is provided. The most recent pipeline inspection and report is provided. No fish, birds, turtles, or other aquatic species found dead in the area where the discharge occurred.

16. Provide the over/shorts reports for June 1, 2014 to August 21, 2014 collected for the segment of pipeline that discharged oil. Include the raw data and interpretation of the reports.

- (a) Were the person(s) reviewing the over/shorts report adequately trained to perform their specific duties? Was their training up to date?
- (b) If the reports indicated a potential loss of fluids on the pipeline, when did you know of these losses and what actions did you initiate?

**Response:** An Over/Short summary for the CNG segment, as well as the Over/Short reports, has been provided. All Controllers received initial training and the group's refresher training was conducted on March 4 and 6, 2016. The relevant section of PPL's Operations Manual and a copy of the training sign-in log have been provided. The reports did not indicate a loss of product.

17. Produce a U.S. Department of the Interior, Geological Survey 7.5 minute series (topographic) map of the area where the discharge occurred, and post on the map the location where the discharge commenced and the maximum extent of the discharge, known as the "reach". If it is not possible on the map to show the discharge point and the reach of the spill, only show the discharge point on the map. Produce another map on a larger scale on which you have posted the discharge point and the reach of the discharge.

**Response:** Please see Figures contained in the Revised Comprehensive Site Assessment Report, dated September 2016 provided in response to Item 10.

18. Identify all federal, state, and local authorities that responded to or investigated the discharge from the Facility and provide a contact for each, including their title and telephone number.

Identify all documents that were given to you by those authorities, including, but not limited to, reports, fines, tickets, photographs, and produce a copy of each. Produce a copy or the photographs electronically to [goodwinjohn@epa.gov](mailto:goodwinjohn@epa.gov). If the documents you identified are not in your possession, identify all persons known to you that have copies of these documents.

**Response: Anderson County, Stormwater department, issued a Notice of Violation to PPL relating to the sediment an erosion control measures, which were approved as part of the site Storm Water Pollution Prevention Plan allegedly not being properly implemented. The associated documents have been provided. See also documents provided in response to Item 10 for communications with agencies. Additionally information can be found on the SCDHEC's website:**

**<http://www.scdhec.gov/HomeAndEnvironment/Pollution/CleanUpPrograms/OngoingProjectsUpdates/PlantationPipeline/>**

**Bobbi Coleman**

**South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
Office: (803) 898-0623**

**Mihir Mehta, P.E.**

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**Kristin Andrade**

**Watershed Manager - U.S. Army Corps of Engineers  
Thurmond Federal Building  
1835 Assembly Street - Room 865 B1  
Columbia, SC 29201**

**Alex P. Kostik  
Stormwater Inspector  
Anderson County Stormwater Department  
Office: (964- 716-3620**

19. Review enclosure 2 and have your representative sign and return it to the EPA with your response to this Information Request.

**Response: Provided.**

20. State any other information about the discharge from the Facility that you would like to bring to the attention of the EPA.

**Response: A metallurgical investigation report was completed on February 23, 2015 and has been provided. This report details the source of the release as a longitudinal crack in the shoulder of the dent under a type A-sleeve repair.**

**ENCLOSURE 2**  
**STATEMENT OF CERTIFICATION**

I certify that the foregoing responses and information submitted were prepared under my direction or supervision and that I have personal knowledge of all matters set forth in the responses and the accompanying information. I certify that the responses are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

By: Mary Clair Lyons  
(Signature)

Mary Clair Lyons  
(Name)

Assistant General Counsel on behalf  
(Title)

Plantation Pipe Line Company  
(Respondent)

3/30/2017  
(Date)

PPL

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**PUBLISHED**

**UNITED STATES COURT OF APPEALS  
FOR THE FOURTH CIRCUIT**

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**No. 17-1640**

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**UPSTATE FOREVER; SAVANNAH RIVERKEEPER,**

**Plaintiffs - Appellants,**

**v.**

**KINDER MORGAN ENERGY PARTNERS, L.P.; PLANTATION PIPE LINE  
COMPANY, INC.,**

**Defendants - Appellees.**

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**ANDERSON COUNTY, SOUTH CAROLINA; PIPELINE SAFETY TRUST,**

**Amici Supporting Appellant,**

**AMERICAN PETROLEUM INSTITUTE; ASSOCIATION OF OIL PIPE  
LINES; GPA MIDSTREAM ASSOCIATION; TEXAS PIPELINE  
ASSOCIATION; NATIONAL ASSOCIATION OF COUNTIES; NATIONAL  
LEAGUE OF CITIES; NATIONAL ASSOCIATION OF CLEAN WATER  
AGENCIES; AMERICAN FOREST AND PAPER ASSOCIATION;  
AMERICAN IRON AND STEEL INSTITUTE; EDISON ELECTRIC  
INSTITUTE; NATIONAL MINING ASSOCIATION; UTILITY WATER ACT  
GROUP; STATE OF WEST VIRGINIA; STATE OF SOUTH CAROLINA;  
STATE OF ALABAMA; STATE OF ARKANSAS; STATE OF INDIANA;  
STATE OF KANSAS; STATE OF LOUISIANA; STATE OF MISSOURI;  
STATE OF OKLAHOMA; STATE OF UTAH; STATE OF WISCONSIN;  
GOVERNOR PHIL BRYANT**

**Amici Supporting Appellee.**

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Appeal from the United States District Court for the District of South Carolina, at Anderson. Henry M. Herlong, Jr., Senior District Judge. (8:16-cv-04003-HMH)

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Argued: December 7, 2017

Decided: April 12, 2018

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Before GREGORY, Chief Judge, and KEENAN and FLOYD, Circuit Judges.

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Vacated and remanded by published opinion. Judge Keenan wrote the majority opinion, in which Chief Judge Gregory joined. Judge Floyd wrote a dissenting opinion.

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**ARGUED:** Frank S. Holleman, III, SOUTHERN ENVIRONMENTAL LAW CENTER, Chapel Hill, North Carolina, for Appellants. James P. Cooney, III, WOMBLE BOND DICKINSON (US) LLP, Charlotte, North Carolina, for Appellees. **ON BRIEF:** Christopher K. DeScherer, SOUTHERN ENVIRONMENTAL LAW CENTER, Charleston, South Carolina, for Appellants. Richard E. Morton, Todd W. Billmire, Jackson R. Price, Charlotte, North Carolina; Clayton M. Custer, WOMBLE CARLYLE SANDRIDGE & RICE, LLP, Greenville, South Carolina, for Appellees. Catherine H. McElveen, RICHARDSON, PATRICK, WESTBROOK & BRICKMAN, LLC, Mount Pleasant, South Carolina, for Amicus Pipeline Safety Trust. Leon C. Harmon, Anderson, South Carolina, for Amicus Anderson County, South Carolina. Alan Wilson, Attorney General, Robert Cook, Solicitor General, J. Emory Smith, Jr., Deputy Solicitor General, OFFICE OF THE ATTORNEY GENERAL, Columbia, South Carolina, for Amicus State of South Carolina. Patrick Morrissey, Attorney General, Thomas M. Johnson, Jr., Deputy Solicitor General, John S. Gray, Deputy Attorney General, Charleston, West Virginia, for Amicus State of West Virginia. Steve Marshall, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF ALABAMA, Montgomery, Alabama, for Amicus State of Alabama. Leslie Rutledge, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF ARKANSAS, Little Rock, Arkansas, for Amicus State of Arkansas. Curtis T. Hill, Jr., Attorney General, OFFICE OF THE ATTORNEY GENERAL OF INDIANA, Indianapolis, Indiana, for Amicus State of Indiana. Derek Schmidt, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF KANSAS, Topeka, Kansas, for Amicus State of Kansas. Jeff Landry, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF LOUISIANA, Baton Rouge, Louisiana, for Amicus State of Louisiana. Joshua D. Hawley, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF MISSOURI, Jefferson City, Missouri, for Amicus State of Missouri. Mike Hunter, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF OKLAHOMA, Oklahoma City, Oklahoma, for Amicus State of Oklahoma. Sean D. Reyes, Attorney General, OFFICE OF THE ATTORNEY GENERAL OF UTAH, Salt Lake City, Utah, for Amicus State of Utah. Brad Schimel, Attorney General, WISCONSIN

DEPARTMENT OF JUSTICE, Madison, Wisconsin, for Amicus State of Wisconsin. Samuel L. Brown, HUNTON & WILLIAMS LLP, San Francisco, California; Nash E. Long, III, Brent A. Rosser, HUNTON & WILLIAMS LLP, Charlotte, North Carolina; Michael R. Shebelskie, HUNTON & WILLIAMS LLP, Richmond, Virginia, for Amici National Association of Counties, National League of Cities, National Association of Clean Water Agencies, American Forest and Paper Association, American Iron and Steel Institute, Edison Electric Institute, National Mining Association, and Utility Water Act Group. David H. Coburn, Cynthia L. Taub, STEPTOE & JOHNSON LLP, Washington, D.C., for Amici American Petroleum Institute, Association of Oil Pipe Lines, GPA Midstream Association, and Texas Pipeline Association.

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BARBARA MILANO KEENAN, Circuit Judge:

In late 2014, several hundred thousand gallons of gasoline spilled from a rupture in a pipeline owned by Plantation Pipe Line Company, Inc., a subsidiary of Kinder Morgan Energy Partners, LP (collectively, Kinder Morgan), near Belton, South Carolina. It is undisputed that the gasoline has seeped into nearby waterways, and the plaintiffs allege that the gasoline has continued to travel a distance of 1000 feet or less from the pipeline to those “navigable waters.”

Two plaintiff conservation groups brought a “citizen suit” under the Clean Water Act (the CWA, or the Act), 33 U.S.C. §§ 1251–1387, alleging that Kinder Morgan was in violation of the Act for polluting navigable waters without a permit and seeking relief to remediate the ongoing pollution. This case requires us to determine whether citizens may bring suit alleging a violation of the CWA when the source of the pollution, the pipeline, is no longer releasing the pollutant, but the pollutant allegedly is passing a short distance through the earth via ground water and is being discharged into surface waterways.

The district court held that it lacked subject matter jurisdiction under the CWA, because the pipeline has been repaired and the pollutants currently pass through ground water to reach navigable waters. We conclude that the district court erred in holding that it lacked jurisdiction, because citizens may bring suit under 33 U.S.C. § 1365(a) for discharges of pollutants that derive from a “point source” and continue to be “added” to navigable waters. We further hold that the plaintiffs have stated a valid claim for a discharge under the CWA. Accordingly, we vacate the district court’s judgment, and remand for further proceedings consistent with this opinion.

I.

A.

In 1972, Congress enacted the CWA to eliminate the discharge of certain pollutants or “effluents” into the “navigable waters” of the United States. *See S. Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560, 563 (4th Cir. 2014); *Piney Run Pres. Ass’n v. Cty. Comm’rs of Carroll Cty.*, 268 F.3d 255, 264–65 (4th Cir. 2001). The CWA’s stated purpose is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). The federal government’s prior regime of water pollution control focused primarily on measuring direct injuries to the Nation’s waters using water quality standards. *Friends of the Earth, Inc. v. Gaston Copper Recycling Corp.*, 204 F.3d 149, 151 (4th Cir. 2000) (en banc) [*Friends of the Earth II*]. In the CWA, however, Congress shifted its regulatory focus for water pollution from water quality standards to limiting discharges of pollutants. *See id.* One of the CWA’s central provisions establishes that “the discharge of any pollutant by any person shall be unlawful.” 33 U.S.C. § 1311(a).

The Act authorizes exceptions to this general prohibition in the form of permits issued in accordance with the National Pollutant Discharge Elimination System (NPDES), which allows limited discharges. *See* 33 U.S.C. §§ 1311(a), 1342; *S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102 (2004) (“[T]he NPDES requires dischargers to obtain permits that place limits on the type and quantity of pollutants.”); *Friends of the Earth II*, 204 F.3d at 151. Both the Environmental Protection Agency (EPA) and state environmental control agencies may issue NPDES

permits. *See Friends of the Earth II*, 204 F.3d at 152. However, consistent with the CWA's general prohibition, a polluter does not violate the statute only when it exceeds limitations in its permit. Instead, a polluter also may be in violation of the statute due to a discharge for which the polluter could not have obtained *any* permit. *See Sierra Club, Lone Star Chapter v. Cedar Point Oil Co.*, 73 F.3d 546, 561 (5th Cir. 1996) ("Nothing in the CWA limits a citizen's right to bring an action against a person who is allegedly discharging a pollutant without a permit solely to those cases where EPA has promulgated an effluent limitation or issued a permit that covers the discharge.").

The CWA authorizes both citizens and government agencies to enforce the Act's provisions. Citizen suits under the CWA have the "central purpose of permitting citizens to abate pollution when the government cannot or will not command compliance." *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 62 (1987).

The Act contains the following citizen suit provision:

[A]ny citizen may commence a civil action on his own behalf—

(1) against any person (including (i) the United States, and (ii) any other governmental instrumentality or agency to the extent permitted by the eleventh amendment to the Constitution) who is *alleged to be in violation of . . . an effluent standard or limitation under this chapter . . .*

33 U.S.C. § 1365(a) (emphasis added). An "effluent standard or limitation" is defined to include the Act's central prohibition on the "discharge of any pollutant" without a permit. *See* 33 U.S.C. §§ 1365(f), 1311(a).

The Act sets forth a technical definition of the term "discharge of a pollutant," which is defined expansively to include "any addition of any pollutant to navigable

waters from any point source.”<sup>1</sup> 33 U.S.C. § 1362(12)(A). A “point source” in turn is defined as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, [or] container . . . .” 33 U.S.C. § 1362(14). The term “navigable waters” is defined in the CWA as “the waters of the United States.” 33 U.S.C. § 1362(7). The Supreme Court has interpreted the term “navigable waters” to mean more than waters that are navigable-in-fact, and to include, for example, wetlands and related hydrological environs. *See, e.g., Rapanos v. United States*, 547 U.S. 715, 730–31, 735 (2006) (plurality opinion) (observing that navigable waters include more than traditionally navigable waters and may include certain wetlands); *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 133 (1985) (“Congress chose to define the waters covered by the Act broadly.”).

B.

The plaintiffs Upstate Forever and the Savannah Riverkeeper<sup>2</sup> (collectively, the plaintiffs) allege that in late 2014, over 369,000 gallons of gasoline spilled from Kinder Morgan’s underground pipeline, which extends over 1100 miles through parts of the eastern United States. In December 2014, citizens in Anderson County, South Carolina,

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<sup>1</sup> Although Section 1311(a) refers to the “discharge of any pollutant” and Section 1362(12)(A) defines “discharge of a pollutant,” we construe these two terms to be substantively identical and refer to the “discharge of a pollutant.”

<sup>2</sup> Upstate Forever and the Savannah Riverkeeper are non-profit public interest organizations that operate in Anderson County, South Carolina, where the spill occurred. Upstate Forever has stated goals of developing clean water in the Upstate region of South Carolina, and the Savannah Riverkeeper works to restore the lakes and tributaries in the Savannah River watershed.

discovered dead plants, a petroleum odor, and pools of gasoline in the vicinity of the pipeline. The plaintiffs allege that gasoline and gasoline toxins have seeped and continue to seep into ground water, wetlands, and waterways in Anderson County and the Savannah River watershed. They allege that although a reported 209,000 gallons were recovered by the end of 2015, no significant amount of contaminants has been removed since that time. Consequently, at the time that the plaintiffs filed their complaint, at least 160,000 gallons allegedly remained unrecovered. Kinder Morgan repaired the pipeline shortly after the initial spill.

When Kinder Morgan's pipeline broke six to eight feet underground, gasoline and related contaminants spilled out into soil and ground water. The plaintiffs allege that these contaminants are seeping into two nearby tributaries of the Savannah River, Browns Creek and Cupboard Creek, and their adjacent wetlands. The pipeline broke less than 1000 feet from Browns Creek and its adjacent wetland, and 400 feet from Cupboard Creek and a second wetland. Both waterways and the wetlands are downgradient from the spill site. The plaintiffs allege that gasoline pollutants from the pipeline are seeping into navigable waters as defined by the CWA, including the above two creeks in Anderson County, Broadway Lake, Lake Secession, Lake Russell, and the Savannah River.<sup>3</sup>

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<sup>3</sup> Kinder Morgan does not challenge the plaintiffs' allegation that these waters, including Browns Creek, Cupboard Creek, and their adjacent wetlands, constitute navigable waters as defined by the CWA. 33 U.S.C. § 1362(7).

The plaintiffs allege that a "plume" of petroleum contaminants continues to migrate into these waterways years later through ground water and various natural formations at the spill site, including "seeps, flows, fissures, and channels." Hazardous gasoline contaminants have been detected on several occasions at the spill site in ground water wells. Contaminants were also detected in Browns Creek as early as January 2015, and additional tests in Browns Creek have reported high levels of contaminants on several later dates in 2015 and in 2016.

Kinder Morgan has implemented certain remediation and recovery measures under the guidance of the South Carolina Department of Health and Environmental Control (DHEC). DHEC is the agency authorized to issue NPDES permits and oversee water quality in South Carolina. *See Friends of the Earth, Inc. v. Gaston Copper Recycling Corp.*, 629 F.3d 387, 390 (4th Cir. 2011) [*Friends of the Earth III*]; S.C. Code § 48-1-100(B).

The plaintiffs allege that Kinder Morgan has failed to comply fully with DHEC's abatement instructions. They claim that although DHEC instructed Kinder Morgan to test for pollution in March 2016, Kinder Morgan only began that additional testing after the plaintiffs made their own visit to the spill site in August 2016. The plaintiffs further allege that their testing conducted in August 2016 revealed that the levels of gasoline contaminants in Browns Creek actually were increasing almost two years after the spill. During their August 2016 visit to the area, oil sheens were visible on the surface of Browns Creek, and devices used to absorb the oil had not been maintained and were saturated with oil.



Kinder Morgan allegedly delayed by six months its submission to DHEC of the required site remediation plan and site assessment, and also refused to comply with another of DHEC's water sampling requests. Publicly available data on DHEC's website indicate that DHEC sampled surface waters at Browns Creek in February 2017 and found pollutants at three locations, each of which is being remediated. South Carolina Department of Health and Environmental Control, *Surface Water Sampling Event*, <http://www.scdhec.gov/HomeAndEnvironment/Pollution/CleanUpPrograms/OngoingProjectsUpdates/PlantationPipeline/SurfaceWaterSamplingEvent/> (last visited Apr. 11, 2018).

The plaintiffs filed this suit in December 2016, alleging discharges of gasoline and gasoline pollutants without a permit, in violation of the CWA under 33 U.S.C. § 1311(a).<sup>4</sup> The complaint includes allegations that the pipeline ruptured and caused a discharge that has polluted, and continues to pollute, navigable waters by seeping from a point source over a distance of 1000 feet or less through soil and ground water to nearby tributaries and wetlands. The plaintiffs thus allege in their complaint two interrelated violations of the CWA: (1) that Kinder Morgan has caused discharges of pollutants from point sources to navigable waters without a permit; and (2) that Kinder Morgan has caused discharges of pollutants that continue to pass through ground water with a "direct hydrological connection" to navigable waters. The plaintiffs also allege that the remediation actions taken to date by Kinder Morgan have been insufficient to abate the

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<sup>4</sup> Kinder Morgan does not contend that gasoline and related contaminants are not pollutants under the CWA. See *United States v. Hamel*, 551 F.2d 107, 110–11 (6th Cir. 1977) (holding that the CWA definition of "pollutant" covers gasoline discharges).

pollution, and seek damages, declaratory relief, and injunctive relief requiring that Kinder Morgan take further measures to control and abate the spill.

Kinder Morgan moved to dismiss the plaintiffs' complaint under Rules 12(b)(1) and 12(b)(6) of the Federal Rules of Civil Procedure, contending both that the district court lacked subject matter jurisdiction and that the plaintiffs had failed to state a claim for relief. Addressing first the sufficiency of the plaintiffs' pleadings, the district court held that the plaintiffs had failed to state a claim because the pipeline had been repaired and no longer was discharging pollutants "directly" into navigable waters. The court also held that it lacked subject matter jurisdiction over the complaint, stating that the CWA did not encompass the movement of pollutants through ground water that is hydrologically connected to navigable waters. Accordingly, the court dismissed the plaintiffs' complaint on both grounds. The plaintiffs timely noted this appeal.

## II.

On appeal, the plaintiffs contend that the district court erred in determining that the continuing addition of pollutants to navigable waters is not an ongoing violation of the CWA because the pipeline has been repaired. According to the plaintiffs, a claim for a discharge of a pollutant, in violation of 33 U.S.C. § 1311(a), need not allege that the pollutant is being discharged *directly* from the point source into navigable waters. They assert that the CWA also prohibits the discharge of pollutants from a point source through ground water that has a direct hydrological connection to navigable waters.

In response, Kinder Morgan contends that the district court did not err because the violation ceased once the pipeline was repaired. Alternatively, Kinder Morgan asserts that if seepage is ongoing, the pollution is seeping from nonpoint sources, namely, from natural formations at the spill site. Kinder Morgan also argues that discharges into navigable waters from hydrologically connected ground water do not fall within the CWA's definition of a "discharge of a pollutant" in 33 U.S.C. § 1362(12)(A). We disagree with Kinder Morgan's position.

A.

We review de novo the district court's dismissal of the complaint under Federal Rules of Civil Procedure 12(b)(1) and 12(b)(6). *Greenhouse v. MCG Capital Corp.*, 392 F.3d 650, 655 (4th Cir. 2004); *Richmond, Fredericksburg & Potomac R.R. Co. v. United States*, 945 F.2d 765, 768–69 (4th Cir. 1991). A district court should grant a motion to dismiss for lack of subject matter jurisdiction under Rule 12(b)(1) "only if the material jurisdictional facts are not in dispute and the moving party is entitled to prevail as a matter of law." *Evans v. B.F. Perkins Co., a Div. of Standex Int'l Corp.*, 166 F.3d 642, 647 (4th Cir. 1999) (citation omitted). To survive a motion to dismiss under Rule 12(b)(6), a plaintiff must "provide[] sufficient detail [ ] to show that he has a more-than-conceivable chance of success on the merits." *Owens v. Balt. City State's Attorneys Office*, 767 F.3d 379, 396 (4th Cir. 2014) (citation omitted).

As a threshold matter, a court first must determine whether it has jurisdiction to entertain a claim. *Steel Co. v. Citizens for a Better Env't*, 523 U.S. 83, 88–89 (1998). A court's determination of subject matter jurisdiction addresses whether the court has the

authority to entertain a particular kind of case, not whether a claim for relief is viable under a particular construction of a statute. *See id.* at 89. Unless Congress has “clearly state[d] that [a statutory limitation] is jurisdictional . . . courts should treat the restriction as nonjurisdictional in character.” *Sebelius v. Auburn Reg’l Med. Ctr.*, 568 U.S. 145, 153 (2013) (citations and internal quotation marks omitted).

I In the present case, the primary issue we consider is whether an indirect discharge of a pollutant through ground water, which has a direct hydrological connection to navigable waters, can support a theory of liability under the CWA. Because our answer to this question largely depends on our construction of the statutory term “discharge of a pollutant,” the question ordinarily would not be jurisdictional in nature.<sup>5</sup> However, because courts have “jurisdiction” over CWA citizen suits only if the complaint alleges an ongoing violation, *Gwaltney*, 484 U.S. at 64, we must address the question of an ongoing violation before proceeding further in this case. Accordingly, we first address whether the plaintiffs have alleged an ongoing violation and, if so, whether they sufficiently have alleged a nexus between the source of the pollution and navigable waters to state a claim for discharge of a pollutant under the CWA. *See Steel Co.*, 523 U.S. at 88–90.

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<sup>5</sup> Had the plaintiffs alleged that ground water, of itself, falls within the meaning of navigable waters under the CWA, we would be confronting a distinctly different question here. *See Solid Waste Agency of N. Cook Cty. v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 180 (2001) (referring to “navigable waters” as a “traditional jurisdictional term”). However, in this case, the plaintiffs have alleged only that Kinder Morgan discharged pollutants “*via hydrologically connected groundwater to surface waters*” (emphasis added).

B.

The CWA authorizes citizens to seek injunctive relief only to abate a “continuous or intermittent” violation. *Gwaltney*, 484 U.S. at 64; *Friends of the Earth III*, 629 F.3d at 402 (“We have instructed that a citizen plaintiff can prove an ongoing violation . . . by proving violations that continue on or after the date the complaint is filed.” (citation omitted)). Conversely, when a violation of the CWA is “wholly past,” the federal courts do not have jurisdiction to entertain a citizen suit, even if the past discharge violated the CWA. *Gwaltney*, 484 U.S. at 64. As we already have noted, the CWA’s citizen suit provision is intended primarily to allow citizens “to abate pollution when the government cannot or will not command compliance.” *Id.* at 62; *cf. Middlesex Cty. Sewerage Auth. v. Nat’l Sea Clammers Ass’n*, 453 U.S. 1, 17 n.27 (1981) (“[P]rivate enforcement suits were intended [often] to be limited to [ ] injunctive relief.”). The citizen suit provision thus enables citizens to seek abatement of polluting discharges to further the CWA’s central purpose, namely, “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a).

In *Gwaltney*, the Supreme Court emphasized that the CWA, like other environmental statutes, authorizes “prospective relief” that only can be attained while a violation is ongoing and susceptible to remediation. 484 U.S. at 57; *see also, e.g.*, 15 U.S.C. § 2619(a)(1) (authorizing citizen suits against persons “alleged to be in violation of” the statute); 42 U.S.C. § 6972 (same). We applied the principles of *Gwaltney* in our decision in *Goldfarb v. Mayor of Baltimore*, holding that a claim of an ongoing violation supported a citizen suit under the Resource Conservation and Recovery Act of 1976

(RCRA), Pub. L. No. 94-580, 90 Stat. 2796 (1976) (codified as amended at 42 U.S.C. §§ 6901–6992k), under a provision that is “identical” to the citizen suit authorization in the CWA. 791 F.3d 500, 513 (4th Cir. 2015).

The plaintiffs in *Goldfarb* alleged that the City of Baltimore had stored hazardous chemicals, which had leaked from the point of storage and had continued to migrate through the soil in violation of the RCRA’s permitting standards. *Id.* at 512. In response to the City’s contention that any RCRA violations were wholly past under the rationale of *Gwaltney*, we observed that “although a defendant’s *conduct* that is causing a *violation* may have ceased in the past . . . what is relevant is that the *violation* is continuous or ongoing.” *See id.* at 511–13 (citing *S. Rd. Assocs. v. IBM Corp.*, 216 F.3d 251, 255 (2d Cir. 2000)). Accordingly, we held that the plaintiffs had alleged an ongoing violation of the RCRA. *Id.*

Our analysis in *Goldfarb* regarding an ongoing violation is equally applicable here.<sup>6</sup> Nothing in the language of the CWA suggests that citizens are barred from seeking injunctive relief after a polluter has repaired the initial cause of the pollution. When interpreting a statute, we attend first to the statute’s plain language. *United States v. Ide*, 624 F.3d 666, 668 (4th Cir. 2010). Like the RCRA, the CWA’s plain language requires only that the citizen allege that the polluter “be in violation of” an “effluent standard or limitation” under the Act. 33 U.S.C. § 1365(a); *see Goldfarb*, 791 F.3d at

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<sup>6</sup> We disagree with the dissent’s view that our decision in *Goldfarb* is not helpful. We held in *Goldfarb* under an identical citizen suit provision that conduct causing a violation need not be ongoing to state a claim, so long as the violation itself is ongoing. 791 F.3d at 513.

512–13. As noted above, an “effluent limitation” of the CWA includes any unpermitted “discharge of a pollutant.” 33 U.S.C. §§ 1365(f), 1311(a). Accordingly, the relevant violation here is the discharge of a pollutant, defined in the Act as “any addition of any pollutant to navigable waters from any point source.” 33 U.S.C. § 1362(12)(A).

Kinder Morgan’s gasoline pipeline unambiguously qualifies as a point source.<sup>7</sup> 33 U.S.C. § 1362(14) (defining a point source to include a “pipe” or “conduit”). The plaintiffs claim that pollutants originating from this point source continue to be “added” to bodies of water that allegedly are navigable waters under the Act, including the two creeks in Anderson County, adjacent wetlands, Broadway Lake, Lake Secession, Lake Russell, and the Savannah River watershed. The CWA’s language does not require that the point source continue to release a pollutant for a violation to be ongoing. The CWA requires only that there be an ongoing “addition . . . to navigable waters,” regardless whether a defendant’s conduct causing the violation is ongoing. 33 U.S.C. §

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<sup>7</sup> Under the dissent’s view, pollution becomes “nonpoint source pollution” not covered by the CWA at the moment when the point source no longer actively releases the pollutant. *See, e.g., ONRC Action v. U.S. Bureau of Reclamation*, 798 F.3d 933, 936 (9th Cir. 2015) (noting that the CWA provides no direct mechanism for regulating “nonpoint source pollution”). We are not persuaded by this argument, because the plaintiffs adequately have alleged that the pipeline is a point source of the discharge, which satisfies the CWA’s requirement that the alleged pollution be “from any point source.” *See* 33 U.S.C. § 1362(12)(A) (emphasis added). Moreover, the cases relied on by the dissent show that nonpoint source pollution arises from “dispersed activities over large areas, and is not traceable to any single discrete source.” *See, e.g., League of Wilderness Defs./Blue Mountains Biodiversity Project v. Forsgren*, 309 F.3d 1181, 1184 (9th Cir. 2002); *see also* 33 U.S.C. 1314(f) (providing examples of nonpoint source pollution, including “agricultural and silvicultural activities”). The plaintiffs here allege that the pollution is traceable not to dispersed activities and nonpoint sources but to Kinder Morgan’s pipeline, a discrete source.

1362(12)(A). *See Goldfarb*, 791 F.3d at 513; *IBM Corp.*, 216 F.3d at 254 (noting under identical RCRA citizen suit provision that “defendant’s current activity at the site is not a prerequisite for finding a current violation”).

The CWA’s term “discharge of a pollutant” is a statutory term of art precisely defined in the CWA. *Cf. Riverside Bayview Homes, Inc.*, 474 U.S. at 133 (noting that statutory definition of “navigable waters” in CWA makes ordinary meaning of those words less important). The definition does not place temporal conditions on the discharge of a pollutant from a point source. Nor does the definition limit discharges under the Act to additions of pollutants to navigable waters from a point source that continues actively to release such pollutants. Instead, the precondition for alleging a cognizable discharge of a pollutant is only that the plaintiff allege an ongoing addition to navigable waters originating from a point source. 33 U.S.C. § 1362(12)(A). Moreover, as we explain below, the CWA is not limited to discharges of pollutants “directly” from the point source to navigable waters. *See, e.g., Hawai’i Wildlife Fund v. Cty. of Maui*, No. 15-17447, 2018 WL 1569313, at \*7–\*8 (9th Cir. Feb. 1, 2018). Necessarily, when a discharge is indirect, there will be a delay between the time at which pollution leaves the point source and the time at which it is added to navigable waters. However, nothing in the CWA’s language indicates that such a delay prevents the pollution from constituting an ongoing violation for purposes of a citizen suit, as long as pollutants continue to be “added” to navigable waters. *See* 33 U.S.C. § 1362(12)(A). The plaintiffs have alleged such an ongoing addition here.



The CWA is a strict liability statute. *Friends of the Earth II*, 204 F.3d at 151. As noted above, Congress set forth in the Act its intention that “the discharge of pollutants into the navigable waters be eliminated,” 33 U.S.C. § 1251(a)(1), not that the originating source of pollutants be corrected. Thus, remedial efforts taken in good faith “do[] not *ipso facto* establish the absence of federal jurisdiction over a citizen suit.” *Am. Canoe Ass’n v. Murphy Farms*, 412 F.3d 536, 540 (4th Cir. 2005). To protect the nation’s waters under the CWA, abatement of a pollutant requires more than the repair of a pipeline, and the need for such abatement continues so long as the contaminant continues to flow into navigable waters. *See Gwaltney*, 484 U.S. at 62 (explaining that CWA’s citizen suit provision has “the central purpose of permitting citizens to abate pollution”). Thus, the fact that a ruptured pipeline has been repaired, of itself, does not render the CWA violation wholly past.<sup>8</sup>

Our conclusion is not altered by Kinder Morgan’s citation to cases from other circuits. Those decisions were based on materially different facts. For example, in *Hamker v. Diamond Shamrock Chemical Co.*, the Fifth Circuit examined a complaint containing allegations of a discharge of oil into ground water from the defendant’s pipe, rather than a discharge reaching navigable waters. *See* 756 F.2d 392, 397 (5th Cir. 1985).

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<sup>8</sup> The dissent relies on *Sierra Club v. El Paso Gold Mines, Inc.*, 421 F.3d 1133 (10th Cir. 2005), for its conclusion that this is an “ongoing migration” case that does not fall under the CWA’s citizen suit provision. However, that court did not hold that an ongoing migration of pollutants cannot constitute a continuing violation of the CWA, but rather noted that the case before the court did not involve a simple ongoing migration of pollutants. *Id.* at 1140.

As the court observed, the complaint alleged only that the discharged oil was “leaking into ground water” and “grasslands,” not into navigable waters.<sup>9</sup> *Id.* Likewise, the Second Circuit held that continuing decomposition of “lead shot” in the Long Island Sound is not a “present violation” of the CWA. *Conn. Coastal Fishermen’s Ass’n v. Remington Arms Co.*, 989 F.2d 1305, 1312–13 (2d Cir. 1993). That holding pertained to whether the continuing effects of pollutants *already* “deposited” into a navigable water constituted a continuing violation. *Id.* at 1313. In contrast, the plaintiffs allege here that pollutants *continue to be added to* navigable waters, a violation encompassed within the Act’s statutory definition. Accordingly, we conclude that the plaintiffs have alleged an ongoing violation of 33 U.S.C. § 1311(a), and that the district court erred in dismissing their complaint for lack of subject matter jurisdiction.

C.

i.

We turn to consider the question of first impression in this Circuit whether a discharge of a pollutant that moves through ground water before reaching navigable waters may constitute a discharge of a pollutant, within the meaning of the CWA. Initially, we observe that a discharge of a pollutant under the Act need not be a discharge “directly” to a navigable water from a point source. In *Rapanos v. United States*, the

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<sup>9</sup> Moreover, to the extent that *Hamker*’s reasoning suggests that an ongoing violation requires that the point source continually discharge a pollutant, *Hamker* contravenes our decision in *Goldfarb*, and we decline to adopt the Fifth Circuit’s approach. See *Goldfarb*, 791 F.3d at 513.

Supreme Court considered the kinds of connected waters covered by the CWA. *See* 547 U.S. at 732–38. Justice Scalia, writing for a plurality of four Justices, concluded that certain wetlands and intermittent streams did not themselves fall within the meaning of navigable waters under the CWA.<sup>10</sup> *See id.* at 739. However, when analyzing the kinds of connected waters that might fall under the CWA, Justice Scalia observed that “[t]he Act does not forbid the ‘addition of any pollutant *directly* to navigable waters from any point source,’ but rather the ‘addition of any pollutant *to* navigable waters.’” *Id.* at 743 (quoting 33 U.S.C. § 1362(12)(A)). Accordingly, he observed that federal courts consistently have held that a discharge of a pollutant “that naturally washes downstream likely violates § 1311(a).” *Id.* (emphasis removed) (citing *United States v. Velsicol Chem. Corp.*, 438 F. Supp. 945, 946–47 (W.D. Tenn. 1976)).

The plain language of the CWA requires only that a discharge come “from” a “point source.” *See* 33 U.S.C. § 1362(12)(A). Just as the CWA’s definition of a

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<sup>10</sup> The district court here rejected the plaintiffs’ argument that the CWA covers a discharge through soil and ground water, because the court concluded that such an argument relies on an impermissible “Land is Waters” approach to CWA jurisdiction. In reaching this conclusion, the district court relied on the plurality opinion in *Rapanos*, which characterized the plaintiffs’ theory there that “intermittent streams” were navigable waters as a so-called “Land is Waters” approach, and rejected that approach. 547 U.S. at 732–34. However, Justice Kennedy’s controlling concurrence in *Rapanos* did not join the plurality in rejecting the plaintiffs’ theory as a “Land is Waters” approach to CWA jurisdiction. 547 U.S. at 768–70; *United States v. Robertson*, 875 F.3d 1281, 1292 (9th Cir. 2017) (holding that Justice Kennedy’s “significant nexus” test controls after *Rapanos*). Moreover, the “Land is Waters” theory in *Rapanos* involved whether certain bodies of water themselves qualified as navigable waters, which is not at issue here. 547 U.S. at 739 (plurality opinion). Thus, irrespective whether a “Land is Waters” approach remains viable under the CWA following *Rapanos*, the plaintiffs’ theory in the present case does not rely on such an approach.

discharge of a pollutant does not require a discharge directly to navigable waters, *Rapanos*, 547 U.S. at 743, neither does the Act require a discharge directly from a point source,<sup>11</sup> *see* 33 U.S.C. § 1362(12)(A). The word “from” indicates “a starting point: as (1) a point or place where an actual physical movement . . . *has its beginning*.” Webster’s Third New International Dictionary 913 (Philip Babcock Gove et al. eds., 2002) (emphasis added); *see also* The American Heritage Dictionary of the English Language 729 (3d ed. 1992) (noting “from” indicates a “starting point” or “cause”). Under this plain meaning, a point source is the starting point or cause of a discharge under the CWA, but that starting point need not also convey the discharge directly to navigable waters.

To hold otherwise effectively would require that any discharge of a pollutant cognizable under the CWA be seamlessly channeled by point sources until the moment the pollutant enters navigable waters. The Second Circuit rejected such an interpretation of the CWA, and we agree with that court’s reasoning. In *Waterkeeper Alliance, Inc. v.*

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<sup>11</sup> The dissent relies on cases that include language stating that a point source must “convey” or “introduce” pollutants to navigable waters. *See, e.g., Miccosukee*, 541 U.S. at 105 (observing that “a point source . . . need only convey the pollutant to ‘navigable waters’”); *Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of N.Y.*, 273 F.3d 481, 491 (2d Cir. 2001) (stating that a “point source must introduce the pollutant into navigable water” (emphasis omitted) (citation omitted)). We disagree with any suggestion that these cases support the conclusion that the CWA requires a discharge from the point source directly to navigable waters. First, these cases simply did not confront the question of an indirect discharge of pollutants through land or ground water over time. Second, many of these cases were decided before *Rapanos* clarified that the CWA’s language does not require a direct discharge. *See* 547 U.S. at 743; *Hawai’i Wildlife Fund*, 2018 WL 1569313, at \*7–\*8. Finally, as we explain below, the point source here allegedly *is* “conveying” and “introducing” pollutants to the navigable waters, albeit indirectly, because it is the undisputed cause of the addition.

*EPA*, the Second Circuit held that if courts required both the cause of the pollution *and* any intervening land to qualify as point sources, such an interpretation would, in practice, “impose a requirement not contemplated by the Act: that pollutants be channelized not once but twice before the EPA can regulate them.” 399 F.3d 486, 510–11 (2d Cir. 2005); *see also Concerned Area Residents for Env’t v. Southview Farm*, 34 F.3d 114, 119 (2d Cir. 1994) (holding that liquid manure that passed from tankers through intervening fields to nearby waters constituted a discharge from a point source). The Ninth Circuit likewise rejected the theory that the CWA creates liability for discharges “only . . . where the point source itself directly feeds into the navigable water—e.g., via a pipe or a ditch.” *Hawai’i Wildlife Fund*, 2018 WL 1569313, at \*7.

The logic of *Waterkeeper Alliance* and *Hawai’i Wildlife Fund* is equally applicable here. The plaintiffs have alleged that the pipeline is the starting point and cause of pollution that has migrated and is migrating through ground water to navigable waters. Accordingly, we hold in agreement with the Second and Ninth Circuits that to qualify as a discharge of a pollutant under the CWA, that discharge need not be channeled by a point source until it reaches navigable waters.

ii.

Although we conclude that an indirect discharge may fall within the scope of the CWA, such discharges must be sufficiently connected to navigable waters to be covered under the Act. As the Ninth Circuit recently held, a discharge that passes from a point source through ground water to navigable waters may support a claim under the CWA. *Hawai’i Wildlife Fund*, 2018 WL 1569313, at \*8. However, a discharge through ground

water does not always support liability under the Act. *Id.* Instead, the connection between a point source and navigable waters must be clear.

The EPA has developed the term “direct hydrological connection” to identify for purposes of the CWA whether there is a clear connection between the discharge of a pollutant and navigable waters when the pollutant travels through ground water. The EPA consistently has taken the position that the Act applies to discharges “from a point source via ground water that has a direct hydrologic connection to surface water.” National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3015 (proposed Jan. 12, 2001) [CAFOs Standards]; *see also* Amendments to the Water Quality Standards Regulation That Pertain to Standards on Indian Reservations, 56 Fed. Reg. 64,876, 64,892 (Dec. 12, 1991) (“[T]he Act requires NPDES permits for discharges to groundwater where there is a direct hydrological connection between groundwaters and surface waters.”). The assessment of the directness of a hydrological connection is a “factual inquiry,” in which “time and distance” are relevant, as well as factors such as “geology, flow, and slope.” CAFOs Standards, 66 Fed. Reg. at 3017. This interpretation by the EPA of its statutory authority “warrants respectful consideration,” especially in the context of a “complex and highly technical regulatory program.” *Wis. Dep’t of Health & Family Servs. v. Blumer*, 534 U.S. 473, 497 (2002) (citing *Thomas Jefferson Univ. v. Shalala*, 512 U.S. 504, 512 (1994)); *see also Riverside Bayview Homes, Inc.*, 474 U.S. at 131.

In light of the above considerations, we hold that a plaintiff must allege a direct hydrological connection between ground water and navigable waters in order to state a claim under the CWA for a discharge of a pollutant that passes through ground water.<sup>12</sup> This determination necessarily is fact-specific. In the present case, the plaintiffs have alleged that pollutants are seeping into navigable waters in Anderson County about 1000 feet or less from the pipeline. This extremely short distance, if proved, provides strong factual support for a conclusion that Kinder Morgan's discharge is covered under the CWA. *See Sierra Club v. El Paso Gold Mines, Inc.*, 421 F.3d 1133, 1137, 1148–50 (10th Cir. 2005) (holding that a discharge that passed through a 2.5-mile tunnel between mine shaft and navigable water could be covered under CWA).

Also as a matter of undisputed fact, the ruptured pipeline caused the pollution at issue here. Kinder Morgan does not assert that the pollutants found in the creeks and wetlands have an independent or contributing cause. And this is not a case in which pollutants are diluted while passing through a labyrinth of underground “tunnel geology,” *El Paso Gold Mines*, 421 F.3d at 1150, or are otherwise diverted from their natural course, *see Sierra Club v. Abston Constr. Co.*, 620 F.2d 41, 45 (5th Cir. 1980) (holding that natural flow of “[g]ravity . . . resulting in a discharge into a navigable body of water,

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<sup>12</sup> The Ninth Circuit has held that an indirect discharge must be “fairly traceable” from the point source to navigable waters. *Hawai'i Wildlife Fund*, 2018 WL 1569313, at \*8 n.3. We see no functional difference between the Ninth Circuit's fairly traceable concept and the direct hydrological connection concept developed by EPA that we adopt today, which as we explain below includes a concept of traceability. In fact, the direct hydrological connection concept may be viewed as a narrower application of the same principle, addressing point source discharges *through ground water*.

may be part of a point source discharge if the [polluter] at least initially collected or channeled the water and other materials”).

Additionally, the plaintiffs have alleged a traceable discharge from the ruptured pipeline. The traceability of a pollutant in measurable quantities is an important factor in the determination whether a particular discharge is covered by the CWA. *See Hawai'i Wildlife Fund*, 2018 WL 1569313, at \*8 (holding that claim for indirect discharge must show that pollution is “fairly traceable” to the point source); *El Paso Gold Mines*, 421 F.3d at 1140 n.4 (noting that pollution that is “not traceable to a single, identifiable source or conveyance” is nonpoint source pollution). And Kinder Morgan does not dispute that pollutants originating from the gasoline pipeline *already* have been detected in the waters of Anderson County.

As we have noted, the CWA's stated purpose is “to restore . . . the chemical, physical, and biological integrity of the Nation's waters,” 33 U.S.C. § 1251(a), and the statute establishes a regime of zero tolerance for unpermitted discharges of pollutants, 33 U.S.C. § 1311(a). In contrast, if the presence of a short distance of soil and ground water were enough to defeat a claim, polluters easily could avoid liability under the CWA by ensuring that all discharges pass through soil and ground water before reaching navigable waters. Such an outcome would greatly undermine the purpose of the Act. Thus, we hold that the plaintiffs plausibly have alleged a direct hydrological connection between the ground water and navigable waters to state a claim for a discharge of a pollutant under 33 U.S.C. § 1311(a).



We find no merit in Kinder Morgan's concern that our holding will result in unintended coverage under the CWA of any discharge of a pollutant into ground water. We do not hold that the CWA covers discharges to ground water itself. Instead, we hold only that an alleged discharge of pollutants, reaching navigable waters located 1000 feet or less from the point source by means of ground water with a direct hydrological connection to such navigable waters, falls within the scope of the CWA.<sup>13</sup> Accordingly, the plain language and purpose of the Clean Water Act direct our conclusion in the present case that the district court has jurisdiction to entertain the plaintiffs' claim under 33 U.S.C. § 1365(a), and that the plaintiffs have stated a claim for a violation of the Act's prohibition of the "discharge of any pollutant." 33 U.S.C. § 1311(a).

### III.

For these reasons, we vacate the district court's decision and remand the case for further proceedings consistent with this opinion.

*VACATED AND REMANDED*

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<sup>13</sup> We also note that federal courts in several states, including some within this Circuit, have upheld in citizen suits the CWA's coverage of ground water-related discharges within those jurisdictions. *See, e.g., Sierra Club v. Va. Elec. & Power Co.*, 247 F. Supp. 3d 753, 762 (E.D. Va. 2017); *Ohio Valley Envtl. Coal. Inc. v. Pocahontas Land Corp.*, 2015 WL 2144905, at \*8 (S.D.W. Va. May 7, 2015); *Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC*, 141 F. Supp. 3d 428, 445 (M.D.N.C. 2015); *see also Tenn. Riverkeeper v. Hensley-Graves Holdings, LLC*, No. 2:13-CV-877-LSC, at 13–18 (N.D. Ala. Aug. 20, 2013).

FLOYD, Circuit Judge, dissenting:

Based on allegations that pollutants are being added into navigable waters, the majority concludes that the Appellants have adequately alleged a cognizable and ongoing Clean Water Act (“CWA”) violation. Maj. Op. at 19. While this conclusion may seem intuitive at first glance, close examination of the text, history, and structure of the CWA reveals that not every addition of pollution amounts to a CWA violation—much less an ongoing CWA violation. Congress precisely defined a CWA violation as the addition of pollutants *from a point source*, and for there to be an ongoing CWA violation, there must be an ongoing addition of pollutants from a point source into navigable waters. *See* 33 U.S.C. § 1362(12). Here, the only point source at issue—Kinder Morgan’s pipeline—has been repaired and is not currently adding any pollutants into navigable waters, thus negating a necessary element of a CWA violation. Because there is no ongoing violation under the meaning of the CWA, I would affirm the district court’s dismissal of the complaint for lack of subject matter jurisdiction and for failure to state a claim upon which relief can be granted. I respectfully dissent.

I.

A.

The parties’ pleadings and briefs reveal the following facts. In late 2014, residents of Belton, South Carolina, discovered that Kinder Morgan’s pipeline released a large amount of gasoline and contaminated the nearby ground (“spill site”). Kinder Morgan repaired the pipeline within a few days of discovering the leak and began remediation

efforts that are ongoing to this day under the supervision of the South Carolina Department of Health and Environmental Control (DHEC). Kinder Morgan has recovered over 209,000 gallons of gasoline, but over 160,000 gallons of gasoline remain unrecovered at the spill site. Kinder Morgan's repaired pipeline is not currently leaking any additional gasoline. Nevertheless, as the gasoline from the spill site gets washed off by ground water or seeps through the ground from the spill site, gasoline is being introduced to navigable waters. In December 2016, the environmental groups Upstate Forever and Savannah Riverkeeper (collectively, "Appellants") initiated a citizen suit against Kinder Morgan, alleging an ongoing CWA violation. After full briefing on the matter, on April 20, 2017, the district court dismissed the Appellants' complaint for lack of subject matter jurisdiction and failure to state a claim.

B.

We review a district court's order dismissing a complaint for lack of subject matter jurisdiction and for failure to state a claim *de novo*. *Goldfarb v. Mayor & City Council of Balt.*, 791 F.3d 500, 505 (4th Cir. 2015). Rule 12(b)(1) of the Federal Rules of Civil Procedure allows a party to move to dismiss a plaintiff's complaint for lack of subject matter jurisdiction. Fed. R. Civ. P. 12(b)(1). To determine whether subject matter jurisdiction exists, courts are "to regard the pleadings' allegations as mere evidence . . . and may consider evidence outside of the pleadings without converting the proceeding to one for summary judgment." *Richmond, Fredericksburg & Potomac R. Co. v. United States*, 945 F.2d 765, 768 (4th Cir. 1991). The nonmoving plaintiff bears the burden of proving subject matter jurisdiction, and "the moving party should prevail

only if the material jurisdictional facts are not in dispute and the moving party is entitled to prevail as a matter of law.” *Id.*

Rule 12(b)(6) allows a party to move to dismiss the plaintiff’s complaint for failure to state a claim. Fed. R. Civ. P. 12(b)(6). When a complaint is attacked by a Rule 12(b)(6) motion, “a plaintiff’s obligation to provide the grounds of his entitlement to relief requires more than labels and conclusions . . . .” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 555 (2007) (internal quotation marks omitted). “Factual allegations must be enough to raise a right to relief above the speculative level.” *Id.*

## II.

Congress enacted the CWA, 33 U.S.C. § 1251 *et seq.*, “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters,” 33 U.S.C. § 1251. To accomplish these goals, Congress comprehensively reshaped the federal water regulatory scheme in various ways. *See EPA v. California ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 203–4 (1976).

First, Congress concentrated the federal regulatory effort on curtailing point source pollution—that is, pollution from “discernible, confined and discrete conveyance[s],” 33 U.S.C. § 1362(14)—“which tended to be more notorious and more easily targeted,” *Or. Nat. Desert Ass’n v. U.S. Forest Serv.*, 550 F.3d 778, 780 (9th Cir. 2008). Second, Congress established the National Pollution Discharge Elimination System (NPDES) which “requires dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the Nation’s waters.” *S. Fla.*

*Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102 (2004). Third, Congress sought to ensure compliance by instituting an enforcement mechanism under which state and federal governments bear the primary responsibility for policing past and ongoing CWA violations, and private citizens provide supplementary enforcement for ongoing violations. *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 52–53, 58 (1987); *The Piney Run Preservation Ass’n v. The Cty. Comm’rs of Carroll Cty., Md.*, 523 F.3d 453, 456 (4th Cir. 2008).

While the CWA includes other important features, it bears explaining these three central features in detail, as they are critical to this appeal.

A.

In drafting the CWA, Congress focused the federal regulatory effort on reducing point source pollution by making the existence of, and the addition of pollutants from, a point source a *sine qua non* element of a CWA violation. The text and structure of the CWA unambiguously lead to this conclusion.

At the outset, it is important to note that “Congress consciously distinguished between point source and nonpoint source discharges.” *Appalachian Power Co. v. Train*, 545 F.2d 1351, 1373 (4th Cir. 1976). Point source pollution is pollution from “any discernible, confined and discrete conveyance.” 33 U.S.C. § 1362(14). The non-exhaustive list of examples of a point source in the CWA includes “pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft.” *Id.* All other sources of pollution—namely, those that are not “discernible, confined and discrete,” *id.*—are considered

nonpoint sources. *Or. Nat. Desert Ass'n*, 550 F.3d at 780. In other words, nonpoint source pollution “is defined by exclusion and includes all water quality problems” that are not from a point source. *Nat'l Wildlife Fed'n v. Gorsuch*, 693 F.2d 156, 166 (D.C. Cir. 1982).

Unlike point source pollution, nonpoint source pollution “arises from many dispersed activities over large areas, and is not traceable to any single discrete source.” *League of Wilderness Defs./Blue Mts. Biodiversity Project v. Forsgren*, 309 F.3d 1181, 1183 (9th Cir. 2002). “Congress had classified nonpoint source pollution as runoff caused primarily by rainfall around activities that employ or create pollutants.” *Cordiano v. Metacon Gun Club, Inc.*, 575 F.3d 199, 220 (2d Cir. 2009) (internal quotation marks omitted). Indeed, a common example of nonpoint source pollution is rain washing pollution off the highway and carrying it along “by runoff in a polluted soup[] [to] creeks, rivers, bays, and the ocean.” *Forsgren*, 309 F.3d at 1183. The EPA guidance on nonpoint source pollution similarly confirms that “[i]n practical terms, nonpoint source pollution does not result from a discharge at a specific, single location (such as a single pipe) but generally results from land runoff, precipitation, atmospheric deposition, or percolation.” *Cordiano*, 575 F.3d at 220 (quoting EPA Office of Water, *Nonpoint Source Guidance* 3 (1987)).

That Congress intended to target point source pollution, rather than nonpoint source pollution, is evident from the text of the CWA, which makes the existence of a point source a required element of a CWA violation. 33 U.S.C. § 1311(a) provides that “[e]xcept as in compliance with [the various section in the CWA], the discharge of any

pollutant by any person shall be unlawful.” “Discharge of a pollutant” is a term of art under the CWA, with a more precise meaning than under ordinary parlance. *Cf. Burgess v. United States*, 553 U.S. 124, 129 (2008) (“Statutory definitions control the meaning of statutory words . . . in the usual case.” (internal quotation marks omitted)). Congress defined “discharge of a pollutant” as “any addition of any pollutant to navigable waters *from any point source*.” 33 U.S.C. § 1362(12) (emphasis added).

In summarizing the requirements under these two statutory provisions, 33 U.S.C. §§ 1311(a), 1362(12), courts have consistently restated the elements of a CWA violation as “(1) discharg[ing] (2) a pollutant (3) into navigable waters (4) *from a point source* (5) without a [NPDES] permit.” *Sierra Club v. El Paso Gold Mines, Inc.*, 421 F.3d 1133, 1142 (10th Cir. 2005) (emphasis added); *see also Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1008 (11th Cir. 2004); *Comm. To Save Mokelumne River v. E. Bay Mun. Util. Dist.*, 13 F.3d 305, 309 (9th Cir. 1993); *Nat’l Wildlife Fed’n v. Consumer Power Co.*, 862 F.2d 580, 583 (6th Cir. 1988) (“[F]or NPDES requirements to apply to any given set of circumstances, ‘five elements must be present: (1) a *pollutant* must be (2) *added* (3) *to navigable waters* (4) *from* (5) a *point source*.’” (quoting *Gorsuch*, 693 F.2d at 165)); *Avoyelles Sportsmen’s League, Inc. v. Marsh*, 715 F.2d 897, 922 (5th Cir. 1983). The “point source need not be the original source of the pollutant; it need only convey the pollutant to ‘navigable waters[.] . . .’” *Miccosukee Tribe*, 541 U.S. at 105. For there to be a conveyance or “addition” of pollutants under the meaning of the CWA, “a ‘point source must *introduce* the pollutant into navigable water from the outside world[.]’ . . . [that is,] any place outside the particular body of water to which pollutants

are introduced.” *Catskill Mts. Chapter of Trout Unlimited, Inc. v. City of New York*, 273 F.3d 481, 491 (2d Cir. 2001) (quoting *Gorsuch*, 693 F.2d at 165). As these definitions unambiguously show, a critical element of a CWA violation is that the pollutant comes from a point source.

Furthermore, the general structure of the CWA confirms that Congress sought to focus on point source pollution. “A central provision of the [CWA] is its requirement that individuals, corporations, and governments secure [NPDES] permits before discharging pollution from any point source into the navigable waters . . .” *Decker v. Nw. Envtl. Def. Ctr.*, 568 U.S. 597, 602 (2013). Under the CWA, point source pollution is regulated by the EPA through the NPDES permitting program, *see* 33 U.S.C. § 1342, and nonpoint source pollution is regulated by the states, *see* 33 U.S.C. § 1329; *Cordiano*, 575 F.3d at 219–220; *Gorsuch*, 693 F.2d at 165–66. Based on this structure, courts have consistently recognized that “nonpoint sources of pollution have not generally been targeted by the CWA . . .” *Or. Nat. Desert Ass’n*, 550 F.3d at 785. In drafting the CWA, “[w]hile Congress could have defined a ‘discharge’ to include generalized runoff, . . . it chose to limit the permit program’s application to the . . . [point source] category.” *Id.* (quoting William L. Andreen, *Water Quality Today—Has the Clean Water Act Been A Success?*, 55 Ala. L. Rev. 537, 562 (2004)). In sum, the fact that “the [CWA] assigns the primary responsibility for regulating point sources to the EPA and nonpoint sources to the states,” *Am. Farm Bureau Fed’n v. EPA*, 792 F.3d 281, 299 (3d Cir. 2015), plainly shows that Congress’s main focus in enacting the CWA was the reduction of point source pollution.



A careful review of the CWA's text and structure reveals that Congress sought to target point source pollution and thus included point source as an indispensable element of a CWA violation.<sup>1</sup>

B.

Congress chose the NPDES permitting program as a central means of controlling point source pollution. “[I]ndividuals, corporations, and governments [must] secure [NPDES] permit[s] before discharging pollution from any point source into the navigable waters of the United States.” *Decker*, 568 U.S. at 602.

Under the CWA, the state and federal governments act as partners in administering the NPDES program and issuing the permits. *Arkansas v. Oklahoma*, 503

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<sup>1</sup> While the text and structure speak unambiguously, for those who may find legislative history persuasive, the CWA's legislative history similarly confirms Congress's focus on point source pollution. Congress added the term “point source” “as a means of identifying industrial polluters” to narrow and clarify the scope of the CWA. *United States v. Plaza Health Labs., Inc.*, 3 F.3d 643, 647 (2d Cir. 1993). The Senate Report for the CWA explains:

In order to further clarify the scope of the regulatory procedures in the Act [sic] the Committee has added a definition of point source to distinguish between control requirements where there are specific confined conveyances, such as pipes, and control requirements which are imposed to control runoff. The control of pollutants from runoff is applied pursuant to Section 209 and the authority resides in the State or local agency.

S. Rep. No. 92-414 (1972), as reprinted in 1972 U.S.C.C.A.N. 3668, 3744. The narrowing of Congress's regulatory focus resulted “in part because nonpoint sources were far more numerous and more technologically difficult to regulate,” whereas “point sources . . . tended to be more notorious and more easily targeted.” *Or. Nat. Def. Ass'n*, 550 F.3d at 780; see also S. Rep. No. 92-414, at 39 (“[M]any nonpoint sources of pollution are beyond present technology of control”). Whatever the reason, the legislative history confirms that Congress intended to focus on point source pollution in enacting the CWA.

U.S. 91, 101 (1992). An NPDES permit can be issued by either the EPA or a state agency. The EPA “initially administers the NPDES permitting system for each State, but a State may apply for a transfer of permitting authority to state officials.” *Nat’l Ass’n of Home Builders v. Defs. of Wildlife*, 551 U.S. 644, 650 (2007). “If authority is transferred, then state officials—not the federal EPA—have the primary responsibility for reviewing and approving NPDES discharge permits, albeit with continuing EPA oversight.” *Id.*

An NPDES permit “place[s] limits on the type and quantity of pollutants that can be released into the Nation’s waters,” *Miccosukee Tribe*, 541 U.S. at 102, and “defines, and facilitates compliance with, and enforcement of, . . . a discharger’s obligations under the [CWA],” *California ex rel. State Water Res. Control Bd.*, 426 U.S. at 205. The EPA promulgates the “effluent limitations” that “restrict the quantities, rates, and concentrations of specified substances which are discharged.” *Arkansas*, 503 U.S. at 101; *see also* 33 U.S.C. §§ 1311, 1314. The states, with substantial guidance from EPA, promulgate the “water quality standards” that express the states’ “desired condition of a waterway . . . so that numerous point sources, despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels.” *Id.* (internal quotation marks); *see also* 33 U.S.C. § 1313. In addition to listing the effluent limitations and water quality standards, NPDES permits also require “compliance with the inspection, reporting and monitoring requirements of the [CWA] as outlined in 33 U.S.C. § 1318.” *Menzel v. Cty. Util. Corp.*, 712 F.2d 91, 94 (4th Cir. 1983). To the benefit of NPDES permit holders, the CWA “shields NPDES permit holders from liability if their discharges comply with their permits.” *Ohio Valley Envtl.*

*Coal. v. Fola Coal Co., LLC*, 845 F.3d 133, 135 (4th Cir. 2017). The NPDES permitting scheme thus constitutes “[t]he primary means for enforcing these limitations and standards.” *Arkansas*, 503 U.S. at 101.

NPDES permitting is, however, not only ill-equipped to address, but also inapplicable to, nonpoint source pollution. Unlike a point source, nonpoint source pollution “arises from many dispersed activities over large areas, and is not traceable to any single discrete source.” *Forsgren*, 309 F.3d at 1184. And for that reason, nonpoint source pollution “is very difficult to regulate through individual permits.” *Id.* More specifically, it would be difficult to mandate compliance with inspection, reporting, and monitoring requirements given that nonpoint source pollution cannot be traced to discrete sources. Thus, sensibly, the CWA does not attempt to regulate nonpoint source pollution through the NPDES permitting. *See El Paso*, 421 F.3d at 1140 n.4 (observing that “[g]roundwater seepage that travels through fractured rock would be nonpoint source pollution, which is not subject to NPDES permitting”); *Forsgren*, 309 F.3d at 1183 (stating that nonpoint source pollution “is regulated in a different way and does not require [an NPDES] permit”); *Gorsuch*, 693 F.2d at 166 (accepting the EPA’s explanation of the CWA that nonpoint source pollution “includes all water quality problems not subject to § 402 [NPDES permit program]”).

In sum, Congress chose the NPDES permitting scheme as the primary means of controlling point source pollution, which is the focus of the CWA regulatory scheme.

C.

Congress also instituted a comprehensive enforcement scheme to ensure compliance with the CWA, in which the state and federal governments bear the primary responsibility for enforcement, but private citizens have limited supplementary enforcement authority.

Under the CWA, “the primary responsibility for enforcement rests with the state and federal governments . . . .” *The Piney Run*, 523 F.3d at 456 (quoting *Sierra Club v. Hamilton Cty. Bd. of Cty. Comm’rs*, 504 F.3d 634, 637 (6th Cir. 2007)). 33 U.S.C. § 1319 vests the EPA with a broad range of enforcement tools—criminal, civil, and administrative. *See, e.g., Sackett v. EPA*, 566 U.S. 120, 122 (2012) (“If the EPA determines that any person is in violation of [the CWA], the Act directs the agency either to issue a compliance order or to initiate a civil enforcement action.”); *United States v. Schallom*, 998 F.2d 196, 198 (4th Cir. 1993) (per curiam) (affirming a criminal conviction for discharging pollutants without a permit in violation of 33 U.S.C. § 1319(c)(2)). The EPA may initiate administrative and civil proceedings for both present and past CWA violations. *See Gwaltney*, 484 U.S. at 58.

The CWA also includes a citizen suit provision, 33 U.S.C. § 1365(a), under which “private citizens provide a second level of enforcement and can serve as a check to ensure the state and federal governments are diligent in prosecuting [CWA] violations.” *The Piney Run*, 523 F.3d at 456 (quoting *Hamilton Cty. Bd. of Cty. Comm’rs*, 504 F.3d at 637). Under the citizen suit provision, “any citizen may commence a civil action . . . against any person . . . who is alleged to be in violation of” the CWA. 33 U.S.C.

§ 1365(a)(1). However, “the citizen suit is meant to supplement rather than to supplant governmental action,” *Gwaltney*, 484 U.S. at 60, and, therefore, Congress limited a citizen’s ability to enforce the CWA in various ways.<sup>2</sup>

One important jurisdictional limit on a citizen’s ability to enforce the CWA is that she may only bring a suit for an *ongoing* CWA violation but not for a *past* violation. *Id.* at 57. The text of the CWA authorizes a citizen suit only against someone “alleged to be in violation of” the CWA. 33 U.S.C. § 1365(a)(1). The Supreme Court concluded that “[t]he most natural reading of ‘to be in violation’ is a requirement that citizen-plaintiffs allege a state of either *continuous* or *intermittent* violation—that is, a reasonable likelihood that a past polluter will continue to pollute in the future.” *Gwaltney*, 484 U.S. at 57 (emphasis added). The *Gwaltney* Court further stated that “Congress could have phrased its requirement in language that looked to the past (‘to have violated’), but it did not choose this readily available option.” *Id.* In other words, Congress did not authorize a citizen to enforce the CWA for “wholly past violations.” *Id.* The Supreme Court observed that allowing citizens to pursue wholly past violations “could undermine the

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<sup>2</sup> A citizen invoking the CWA citizen suit provision must first show that she has Article III and statutory standing to bring the suit. See 33 U.S.C. § 1365(g); *Friends of the Earth, Inc. v. Gaston Copper Recycling Corp.*, 204 F.3d 149, 152 (4th Cir. 2000) (en banc). Moreover, the citizen may not commence suit prior to 60 days after giving notice of the alleged violation to the appropriate governmental authority and the alleged polluter. 33 U.S.C. § 1365(b)(1)(A). Lastly, 33 U.S.C. § 1365(b)(1)(B) “bars a citizen from suing if the EPA or the State has already commenced, and is ‘diligently prosecuting,’ an enforcement action.” *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs., Inc.*, 528 U.S. 167, 175 (2000). Congress instituted these restrictions on the CWA citizen suit provision “to strike a balance between encouraging citizen enforcement of environmental regulations and avoiding burdening the federal courts with excessive numbers of citizen suits.” *Hallstrom v. Tillamook Cty.*, 493 U.S. 20, 29 (1989).

supplementary role envisioned for the citizen suit.” *Id.* at 60. Thus, a citizen seeking to commence a citizen suit “must show that the defendant’s violations of the CWA are ongoing at the time of suit.” *Am. Canoe Ass’n v. Murphy Farms, Inc.*, 326 F.3d 505, 521 (4th Cir. 2003).

Therefore, although Congress envisioned private citizens playing an important role in the CWA enforcement by providing supplementary enforcement, it also placed jurisdictional limitations on citizen suits by requiring the existence of an ongoing violation.

### III.

The threshold jurisdictional question in this appeal is whether there is a cognizable and ongoing CWA violation such that the Appellants’ citizen suit may proceed. *See Gwaltney*, 484 U.S. at 57. In my view, the Appellants have failed to show that the CWA violation is ongoing, because there is no ongoing discharge of pollutants from a point source. *Cf. Am. Canoe Ass’n*, 326 F.3d at 521. Instead, the facts presented to us in the record demonstrate that there is an ongoing groundwater migration from the spill site, which does not amount to a CWA violation and cannot support a citizen suit. *See Or. Nat. Desert Ass’n*, 550 F.3d at 785 (noting that Congress chose not to include generalized runoff within the definition of “discharge”).

A.

In my view, there is no ongoing CWA violation. The Appellants cannot show that there is an ongoing discharge of pollutants from a point source, because the only point source at issue—the pipeline—is not currently leaking or releasing any pollutants.

A CWA violation is defined as an unpermitted “discharge of any pollutant by any person.” 33 U.S.C. § 1311(a). “Discharge of a pollutant” is defined as “any addition of any pollutant to navigable waters from any point source.” 33 U.S.C. § 1362(12). For there to be an “addition . . . from a point source,” *id.*, the point source must convey, transport, or introduce the pollutant to navigable waters. *See Miccosukee Tribe*, 541 U.S. at 105 (observing that “a point source . . . need only convey the pollutant to ‘navigable waters’ ” and that the examples of point sources in 33 U.S.C. § 1362(12) are objects that “transport” pollutants); *Catskill Mts.*, 273 F.3d at 491 (“[A] ‘point source must *introduce* the pollutant into navigable water from the outside world.’ ” (quoting *Gorsuch*, 693 F.2d at 165)). In other words, to constitute a CWA violation, a point source must have been involved in the discharging activity.

Thus, for there to be an *ongoing* CWA violation, a point source must currently be involved in the discharging activity by adding, conveying, transporting, or introducing pollutants to navigable waters. *See El Paso Gold Mines*, 421 F.3d at 1140 (summarizing the “ongoing migration cases” in which there was “an identifiable discharge from a point source that *occurred in the past . . .*,” but “[a]t the time of suit, the discharging activity *from a point source . . .* had ceased,” and citizen suits were dismissed). The majority notes that “[t]he CWA’s language does not require that the point source continue to

release a pollutant for a violation to be ongoing.” Maj. Op. at 16. It is difficult to see how there could be an ongoing CWA violation—defined as “any addition of pollutants . . . from any point source”—without an ongoing discharging activity from a point source. In my view, to constitute an ongoing CWA violation (i.e. ongoing point source pollution), the point source’s discharging, adding, conveying, transporting, or introducing of pollutants must be continuous.

Kinder Morgan’s pipeline is not presently leaking or releasing gasoline; therefore, the only relevant point source is not currently discharging—adding, conveying, transporting, or introducing—pollutants to navigable waters. *Cf. Miccosukee Tribe*, 541 U.S. at 105; *Catskill Mts.*, 273 F.3d at 491. Thus, in my view, there is no ongoing violation under the meaning of the CWA. This should therefore end the Appellants’ citizen suit, which requires an ongoing CWA violation. *See* 33 U.S.C. §§ 1362(12); 1365(a); *Gwaltney*, 484 U.S. at 57. The majority also seemingly recognizes that pollutants must be actively “*originating* from a point source.” Maj. Op. at 17 (emphasis added). However, the majority’s theory is that since the pollutants in the spill site *once came* from the pipeline, the continuing addition from the spill site is thus a continuing discharge from a point source. But accepting this position would effectively erase the phrase *from any point source* out of the CWA, 33 U.S.C. § 1362(12), and find an ongoing CWA violation even though no pollutant is originating or being added from a point source any longer. Thus, in my view, the majority disregards point source as an element of a CWA violation and invents a violation not cognizable under the CWA.



Because the pipeline is not actively and continuously discharging pollutants, there is no ongoing violation, but only a wholly past violation, under the meaning of the CWA.

B.

In my view, this is an ongoing migration case, which does not amount to an ongoing CWA violation and cannot support a citizen suit. Kinder Morgan is a past violator—that is, it indirectly added pollutants to navigable waters from its point source when its pipeline leaked and released a large amount of gasoline that reached navigable waters. Although Kinder Morgan’s pipeline itself is not currently leaking, the effects of Kinder Morgan’s past violation continue. The spill site continues to introduce gasoline into navigable waters as gasoline migrates through the ground or as ground water washes off and carries gasoline to navigable waters. This Court has not addressed whether a past discharge with lasting effects—through an ongoing migration of pollutants through groundwater movement—can support a citizen suit. *See Ohio Valley Envtl. Coal., Inc. v. Hernshaw Partners, LLC*, 984 F. Supp. 2d 589, 597 (S.D. W. Va. 2013) (observing there is no Fourth Circuit precedent directly on point).

Given similar circumstances, however, several federal courts have concluded that ongoing migration of pollutants from a past discharge does not amount to an ongoing discharge necessary to support a citizen suit under the CWA. *Conn. Coastal Fishermen’s Ass’n v. Remington Arms Co.*, 989 F.2d 1305, 1312–13 (2d Cir. 1993) (finding no ongoing CWA violation because the alleged polluter had “ceased operation of the Gun Club” that deposited lead shot and clay target debris into navigable waters “by the time plaintiff filed suit”); *Pawtuxet Cove Marina v. Ciba-Geigy Corp.*, 807 F.2d 1089, 1094

(1st Cir. 1986) (finding no ongoing CWA violation because “[a]t the time plaintiffs brought suit, . . . defendant had ceased operating”); *Hamker v. Diamond Shamrock Chem. Co.*, 756 F.2d 392, 397 (5th Cir. 1985) (finding no ongoing CWA violation because “the complaint alleges . . . only that there are continuing *effects* from the past discharge, and such an allegation is insufficient for the purposes of section 1365.”); *Aiello v. Town of Brookhaven*, 136 F. Supp. 2d 81, 120–21 (E.D.N.Y. 2001) (concluding that the ongoing migration of residual leachate plume from a past violation is not an ongoing CWA violation), *Wilson v. Amoco Corp.*, 33 F. Supp. 2d 969, 975–76 (D. Wyo. 1998); *Friends of Santa Fe Cty. v. LAC Minerals, Inc.*, 892 F. Supp. 1333, 1354 (D.N.M. 1995) (“Migration of residual contamination resulting from previous releases is not an ongoing discharge within the meaning of the Act.”); *Brewer v. Ravan*, 680 F. Supp. 1176, 1183 (M.D. Tenn. 1988); *cf. El Paso*, 421 F.3d at 1140.

Like those courts, I would conclude that the lasting effects of Kinder Morgan’s past violation cannot give rise to a citizen suit under the CWA for two reasons. First, ongoing migration does not involve a point source, thus negating an essential element of a CWA violation. Second, ongoing migration is, by definition, nonpoint source pollution, which is outside of the CWA’s reach.

i.

Ongoing migration from a site contaminated by a past discharge does not involve a point source and is thus not a cognizable violation under the CWA. *See* 33 U.S.C. § 1362(12). Indeed, the lack of a discharging activity from a point source was the

decisive factor for many courts in concluding that ongoing migration cannot support a CWA citizen suit. As the Tenth Circuit has summarized:

The ongoing migration cases [in which the courts dismissed the citizen suits] . . . all involve an identifiable discharge from a point source that *occurred in the past*, whether it be a spill, *Wilson*, 989 F. Supp. at 1163, the accidental leakage at a chemical plant, *Hamker*, 756 F.2d at 394, the discharge of lead shot and clay targets at a firing range, *Remington Arms*, 989 F.2d at 1309, or dumping of waste rock at a mine, *LAC Minerals*, 892 F. Supp. at 1337. At the time of suit, the discharging activity *from a point source* in all of these cases had ceased; all that remained was the migration, decomposition, or diffusion of the pollutants into a waterway.

*El Paso*, 421 F.3d at 1140. Likewise, at the time of the Appellants' suit, the discharging activity from Kinder Morgan's point source (i.e., the gasoline leak) had ceased, and all that remained was migration of gasoline from the spill site to navigable waters. "Migration of residual contamination resulting from previous releases is not an ongoing discharge within the meaning of the [CWA]," *LAC Minerals*, 892 F. Supp. at 1354, because the point source itself is not conveying or introducing a pollutant into navigable waters, *see Miccosukee Tribe*, 541 U.S. at 105; *Gorsuch*, 693 F.2d at 175.

The majority attempts to distinguish one of these migration cases from the Fifth Circuit, *Hamker*, 756 F.2d at 397, by observing that *Hamker* only dealt with an alleged discharge into groundwater and not navigable waters. *See* Maj. Op. at 19. But the court's analysis in *Hamker* did not turn on the issue of navigable waters; rather, it turned on the fact that the continuing addition of pollutants did not come from any point source. *Hamker*, 756 F.2d at 397. The majority further states in a footnote that "to the extent that *Hamker*'s reasoning suggests that an ongoing violation requires that the point source continually discharge a pollutant, *Hamker* contravenes our decision in *Goldfarb*." Maj.

Op. at 19 n.9. The majority misplaces reliance on *Goldfarb*. This Court in *Goldfarb* observed that, under the Resource Conservation and Recovery Act's (RCRA) citizen suit provision, 42 U.S.C. § 6972(a)(1)(A), "although a defendant's *conduct* that is causing a *violation* may have ceased in the past . . . what is relevant is that the *violation* is continuous or ongoing." *Goldfarb*, 791 F.3d at 513. The statement in *Goldfarb* presumes that there already is an ongoing violation, does not help us in determining whether a polluter's past action with lasting effects should be viewed as past or ongoing violation, and is inapplicable to Kinder Morgan's situation because Kinder Morgan's CWA violation had ceased when its point source ceased discharging pollutants.

ii.

Moreover, migration of pollutants from the spill site amounts to an ongoing nonpoint source pollution. As discussed above, Congress chose not to regulate nonpoint source pollution through the NPDES permitting program. *See, e.g., El Paso*, 421 F.3d at 1140 n.4; *Forsgren*, 309 F.3d at 1183; *Gorsuch*, 693 F.2d at 166; *Appalachian Power*, 545 F.2d at 1373–74. Nonpoint source pollution is commonly caused by the natural movements of rainfall or groundwater that wash off and carry pollutants from a large, diffuse area to navigable waters. *Codiano*, 575 F.3d at 220 ("[N]onpoint source pollution . . . generally results from land runoff, precipitation, atmospheric deposition, or percolation."); *El Paso*, 421 F.3d at 1140 n.4 ("Groundwater seepage that travels through fractured rock would be nonpoint source pollution, which is not subject to NPDES permitting."); *Sierra Club v. Abston Constr. Co., Inc.*, 620 F.2d 41, 44 (5th Cir. 1980) ("The focus of [the CWA] is on the 'discernible, confined and discrete' conveyance of

the pollutant, which would exclude natural rainfall drainage over a broad area.”); *Tr. for Alaska v. EPA*, 749 F.2d 549, 558 (9th Cir. 1984) (“Congress had classified nonpoint source pollution as runoff caused primarily by rainfall around activities that employ or create pollutants.”). Nonpoint source pollution—caused by movements of rain or groundwater—“is very difficult to regulate through individual [NPDES] permits” because it “arises from many dispersed activities over large areas, and is not traceable to any single discrete source.” *Forsgren*, 309 F.3d at 1184.

Here, the Appellants have alleged ongoing migration from the spill site, which does not amount to a CWA violation. The Appellants have alleged that the groundwater flow from the spill site is introducing pollutants to navigable waters. Appendix (“App.”) 8. Indeed, the Appellants’ CWA case is built on the novel theory that the introduction of pollutants through the movement of hydrologically connected *groundwater* amounted to a CWA violation. Appellant Br. 26. As the record plainly shows, groundwater is carrying gasoline from the spill site, which spans in three different directions from the pipeline and covers a vast area. App. 99, 173. This kind of migration of pollutants through the natural movements of groundwater amounts to nonpoint source pollution. *El Paso*, 421 F.3d at 1140 n.4; *see also Forsgren*, 309 F.3d at 1184. While there is no doubt this kind of nonpoint source pollution affects the quality navigable waters, Congress deliberately chose not to place nonpoint source pollution within the CWA’s reach.<sup>3</sup> *See*,

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<sup>3</sup> An exception to this general rule is that the “[g]ravity flow, resulting in a discharge into a navigable body of water, may be part of a point source discharge if the [polluter] at least initially collected or channeled the water and other materials.” *Abston* (Continued)

e.g., *Abston Constr.*, 620 F.2d at 44. In my view, therefore, because ongoing migration of pollutants is nonpoint source pollution, it is not cognizable under the CWA.

In sum, I would conclude that ongoing migration of pollutants from a past discharge does not amount to an ongoing CWA violation.

C.

I do not take lightly the allegations of the severe environmental harm caused by Kinder Morgan. The Appellants have alleged facts suggesting a serious environmental disaster that cannot be easily overlooked as a mere peccadillo on the part of Kinder Morgan's operation and management. The allegations indicate that a full restoration will take many years and require tremendous resources.

The severity of the situation alone, however, does not and cannot give rise to a citizen suit under the CWA. "Federal courts are courts of limited jurisdiction. They possess only that power authorized by Constitution and statute." *Kokkonen v. Guardian Life Ins. Co. of Am.*, 511 U.S. 375, 377 (1994). In creating a citizen suit provision under the CWA, Congress deliberately limited federal courts' jurisdiction such that they may entertain citizen suits only for allegations of ongoing CWA violations. 33 U.S.C. §

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*Contr.*, 620 F.2d at 45. This is because, once a polluter attempts to channel, collect, or otherwise redirect the flow of water, such an effort becomes a "discernible, confined and discrete" conveyance. 33 U.S.C. § 1362(14); see also *Sierra Club v. Va. Elec. Power Co.*, 247 F. Supp. 3d 753, 763 (E.D. Va. 2017) ("Dominion built the piles and ponds to concentrate [pollutants] in one location . . . [which] channels and conveys [pollutants] directly into groundwater and thence into the surface waters. Essentially they are discrete mechanisms . . . ."). The Appellants have not alleged that Kinder Morgan has at all attempted to channel, collect, or redirect the free flow of groundwater. See App. 419.

1365(a); *Gwaltney*, 484 U.S. at 57. And Congress precisely defined a CWA violation as a point source discharge without an NPDES permit. The critical element—the addition from a point source—cannot be satisfied here because Kinder Morgan has repaired its pipeline and the pipeline is not currently leaking or adding pollutants to navigable waters. The Appellants can only point to nonpoint pollution from the spill site or the past violation, which cannot give rise to a citizen suit under the CWA.

Barring the Appellants' citizen suit would not necessarily mean that Kinder Morgan will evade accountability. Under the CWA, the primary responsibility for enforcement rests with the state and federal governments. *The Piney Run*, 523 F.3d at 456. In fact, the State of South Carolina, through DHEC, has stepped in and is actively overseeing the remediation efforts. DHEC has directed Kinder Morgan to investigate the impact of the spill and implement corrective action plans. After a series of back and forth revisions between DHEC and Kinder Morgan, on March 1, 2017, DHEC approved the "Startup Plan for Surface Water Protection Measures" that was meant to implement additional remedial measures in the spill site. App. 351. Thus, even without a CWA citizen suit, the State of South Carolina is protecting and remediating the waters and natural resources within its borders. In addition to ordering Kinder Morgan to remediate the spill site, the state and federal governments are also empowered to use criminal, civil, and administrative enforcement actions for even for *past* violations of the CWA.

Moreover, if a CWA citizen suit fails for lack of subject matter jurisdiction, other state and federal laws may provide actionable claims against Kinder Morgan. South Carolina state law may provide a more encompassing response. As the *amici* States have

pointed out, Brief of the *Amici* States 22–23, South Carolina law provides for the state to recover monetarily from polluters for violations that includes even nonpoint source pollution, *see* S.C. Code § 48-1-90(a)(1). In addition to the enforcement mechanism under state law, other federal laws could provide recourse. In response to Kinder Morgan’s past spill, a federal citizen suit may perhaps be more appropriate under the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.*, which is “designed to effectuate the cleanup of toxic waste sites” and to impose cleanup costs, *Meghrig v. KFC W., Inc.*, 516 U.S. 479, 483 (1996) (citations omitted), or under the RCRA, 42 U.S.C. § 6901 *et seq.*, which concerns with the disposal of hazardous waste, *Aiello*, 136 F. Supp. 2d at 121 (“It is RCRA, rather than the CWA, that appropriately addresses liability for ongoing contamination by past polluters.”).

The Appellants have raised serious allegations but, in my view, the CWA citizen suit is not the proper mechanism to seek redress. Therefore, the district court lacked subject matter jurisdiction and the complaint failed to state a claim upon which relief can be granted.

#### IV.

For the reasons above, I would affirm the district court’s dismissal of the Appellants’ complaint. I respectfully dissent.



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RECORD NO. 17-1640

**United States Court of Appeals**  
 For the Fourth Circuit

**UPSTATE FOREVER; SAVANNAH RIVERKEEPER,**

*Plaintiffs – Appellants,*

v.

**KINDER MORGAN ENERGY PARTNERS, L.P.;  
 PLANTATION PIPE LINE COMPANY, INC.,**

*Defendants – Appellees.*

**ON APPEAL FROM THE UNITED STATES DISTRICT COURT  
 FOR THE DISTRICT OF SOUTH CAROLINA  
 AT ANDERSON**

**RESPONSE BRIEF FOR DEFENDANTS – APPELLEES  
 KINDER MORGAN ENERGY PARTNERS, L.P. AND PLANTATION PIPE  
 LINE COMPANY, INC.**

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**UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT  
 DISCLOSURE OF CORPORATE AFFILIATIONS AND OTHER INTERESTS**

Disclosures must be filed on behalf of all parties to a civil, agency, bankruptcy or mandamus case, except that a disclosure statement is not required from the United States, from an indigent party, or from a state or local government in a pro se case. In mandamus cases arising from a civil or bankruptcy action, all parties to the action in the district court are considered parties to the mandamus case.

Corporate defendants in a criminal or post-conviction case and corporate amici curiae are required to file disclosure statements.

If counsel is not a registered ECF filer and does not intend to file documents other than the required disclosure statement, counsel may file the disclosure statement in paper rather than electronic form. Counsel has a continuing duty to update this information.

No. 17-1640 Caption: Upstate Forever et al. v. Kinder Morgan Energy Partners, L.P. et al.

Pursuant to FRAP 26.1 and Local Rule 26.1,

Plantation Pipe Line Company, Inc.  
 (name of party/amicus)

who is Appellee, makes the following disclosure:  
 (appellant/appellee/petitioner/respondent/amicus/intervenor)

1. Is party/amicus a publicly held corporation or other publicly held entity? ☐ YES ☒ NO
2. Does party/amicus have any parent corporations?  
 If yes, identify all parent corporations, including all generations of parent corporations:  
 Plantation Pipe Line Company, Inc. is 51% owned by Kinder Morgan Energy Partners, L.P. and 49% owned by ExxonMobil Corporation.  
 Kinder Morgan Energy Partners, L.P. is 100% owned by Kinder Morgan G.P., Inc.  
 Kinder Morgan, G.P., Inc. is 100% owned by Kinder Morgan, Inc. ☒ YES ☐ NO
3. Is 10% or more of the stock of a party/amicus owned by a publicly held corporation or other publicly held entity? ☒ YES ☐ NO  
 If yes, identify all such owners:  
 Plantation Pipe Line Company, Inc. is 51% owned by Kinder Morgan Energy Partners, L.P. and 49% owned by ExxonMobil Corporation.

4. Is there any other publicly held corporation or other publicly held entity that has a direct financial interest in the outcome of the litigation (Local Rule 26.1(a)(2)(B))? ☐ YES ☒ NO  
If yes, identify entity and nature of interest:  
None that are not identified in number 2.

5. Is party a trade association? (amici curiae do not complete this question) ☐ YES ☒ NO  
If yes, identify any publicly held member whose stock or equity value could be affected substantially by the outcome of the proceeding or whose claims the trade association is pursuing in a representative capacity, or state that there is no such member:

6. Does this case arise out of a bankruptcy proceeding? ☐ YES ☒ NO  
If yes, identify any trustee and the members of any creditors' committee:

Signature: /s Richard E. Morton Date: 6/2/2017  
Counsel for: Plantation Pipe Line Company, Inc.

**CERTIFICATE OF SERVICE**  
\*\*\*\*\*

I certify that on 6/2/2017 the foregoing document was served on all parties or their counsel of record through the CM/ECF system if they are registered users or, if they are not, by serving a true and correct copy at the addresses listed below:

/s Richard E. Morton 6/2/17  
(signature) (date)

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## STATEMENT OF ISSUES

- I. WHETHER THE DISTRICT COURT CORRECTLY CONCLUDED THAT IT DID NOT HAVE SUBJECT MATTER JURISDICTION OVER A SINGLE RELEASE OF PETROLEUM PRODUCT FROM A PIPELINE WHEN THAT RELEASE OCCURRED MORE THAN TWO YEARS BEFORE PLAINTIFFS FILED SUIT, WHEN THE PIPELINE HAS BEEN FULLY REPAIRED, AND WHEN THERE HAVE BEEN NO OTHER RELEASES IN OVER TWO YEARS.
- II. WHETHER THE DISTRICT COURT CORRECTLY HELD THAT SOIL INTO WHICH POLLUTANTS ARE SPILLED AND GROUNDWATER ARE “NON-POINT SOURCES” THAT ARE NOT REGULATED BY THE CLEAN WATER ACT.
- III. WHETHER THE DISTRICT COURT CORRECTLY HELD THAT THE CLEAN WATER ACT DOES NOT REGULATE DISCHARGES INTO GROUNDWATER, EVEN WHEN THAT GROUNDWATER IS ALLEGED TO BE HYDROLOGICALLY CONNECTED TO SURFACE WATERS.

## STATEMENT OF THE CASE<sup>1</sup>

### **I. THE NOVEMBER 2014 RELEASE.**

Kinder Morgan Energy Partners L.P. (“KMEP”) is the majority owner and operator of Plantation Pipe Line Company (“PPL”) (collectively referred to as “PPL”). The Plantation Pipe Line is a 3,100-mile pipeline network that originates in Louisiana and ends in Washington, D.C. (“the “Pipeline”) (App. 7, Compl., ¶ 4.)

In early December 2014, PPL learned that a permanent repair sleeve on a portion of the Pipeline located in Anderson County, South Carolina had failed and

<sup>1</sup> KMEP and PPL believe that Plaintiffs’ Statement of the Case is inadequate to fully set forth the factual matters underlying the legal issues in this case pursuant to Fed. R. App. P. 28.

spilled approximately 370,000 gallons of gasoline and petroleum products.<sup>2</sup> (See DHEC Website.)<sup>3</sup> The leakage – which was located approximately six to eight feet below ground – was discharged into the soil and not directly discharged into any body of water.<sup>4</sup> (See App. 83, 3/5/15 Interim Corrective Action Plan.) Within a matter of days, PPL fully repaired the Pipeline. (See App. 83, Interim CAP, App. 99, 9/26/16 Revised CSA Report.) PPL also took immediate action to investigate the extent of the release and to remediate the release. (See DHEC Website.) In 2015, PPL removed more than 209,000 gallons of gasoline and petroleum products from the site. (App. 7, Compl., ¶ 8.) Those remediation efforts continue today under DHEC's oversight. (See DHEC Website (follow "Response and Assessment Actions" hyperlink)).

<sup>2</sup> The release from the Pipeline ("product" or "petroleum product") was composed of approximately five parts gasoline and one part diesel.

<sup>3</sup> The South Carolina Department of Health and Environmental Control ("DHEC") created a public website regarding the release, which is publicly available and thus the subject to judicial notice in this case. See *Phillips v. Pitt Cty. Mem'l Hosp.*, 572 F.3d 176, 180 (4th Cir. 2009) ("In reviewing a Rule 12(b)(6) dismissal, [a court] may properly take judicial notice of matters of public record."). Though not included in Plaintiffs' Appendix, DHEC's website was cited to the District Court. (See App. 52, Mot. to Dismiss Br.) The website is available at <http://scdhec.gov/HomeAndEnvironment/Pollution/CleanUpPrograms/OngoingProjects/Updates/PlantationPipeline/> (last visited August 30, 2017).

<sup>4</sup> The site was comprised of two parcels of land owned by two private parties. PPL purchased one parcel shortly after the release was discovered. The other parcel owners filed a separate lawsuit against KMEP, PPL, and others. The Parties entered into a confidential settlement on August 1, 2017.

There are two streams – Browns Creek and Cupboard Creek – and two wetlands located on the site. (App. 8, Compl., ¶ 11.) The Pipeline did not, and never has, discharged any gasoline, petroleum product, or any other pollutant directly into either of these bodies of water.

## II. DHEC'S OVERSIGHT OF PPL'S ONGOING REMEDIATION EFFORTS.

Shortly after the release, DHEC directed PPL to investigate the extent of the impact and to implement remedial actions to address its effects. Since that time, DHEC has been continuously overseeing PPL's remediation of the site. At DHEC's request, PPL has submitted multiple iterations of its Comprehensive Site Assessment ("CSA") and Corrective Action Plan ("CAP").

PPL submitted its initial CSA to DHEC on July 15, 2016, and a revised CSA on September 26, 2016. (See App. 87-190, CSA.) At that time, PPL had installed 98 temporary monitoring wells, 20 product recovery sumps, 15 recovery wells, two product recovery trenches, and 17 booms. (App. 96, CSA.) To date, PPL has removed more than 2,800 tons of contaminated soil and, as of June 2017, had recovered more than 222,732 gallons of petroleum product. (See DHEC Website (follow "Periodic Monitoring Reports" hyperlink, then follow "June 2017" hyperlink)). Recovery of the petroleum products is on-going at the site and surface water samples are collected monthly at multiple locations along Browns Creek. (*Id.*)



PPL also submitted an Interim CAP on March 5, 2015, and a completed CAP on September 1, 2016. (*See* App. 82-86, Interim CAP; App. 209-238, CAP.) The purpose of the CAP is to describe the proposed comprehensive plan to remediate the soil, groundwater, and surface water impacted by the release. (*See* App. 216, CAP.) DHEC published that CAP for public comment between October 21, 2016, and December 6, 2016. (*See* App. 240, DHEC's 1/27/17 Ltr. to PPL.) Plaintiffs were actively involved in that process and, on November 24, 2016, submitted detailed requests and concerns regarding the CAP directly to DHEC. (App. 191-205, Pl.'s 11/28/16 Ltr. to DHEC.)

On January 27, 2017, DHEC provided PPL with questions and comments for the proposed CAP and demanded a CAP Addendum within 30 days. (App. 240-257, DHEC's 1/27/17 Ltr. to PPL.) DHEC required that PPL incorporate nineteen (19) requests for additional information and action items into the CAP Addendum – including many identified by Plaintiffs in their November 28 letter. (App. 242, App. 244-257, DHEC's 1/27/17 Ltr. to PPL.)

On March 1, 2017, PPL submitted its CAP Addendum, which specifically addressed the issues that Plaintiffs raised during the public comment period. (*See* DHEC Website.) On May 25, 2017, PPL submitted an additional revision to the CAP (the "Revised CAP Addendum"). (*See* DHEC Website (follow "Corrective Action Plan" hyperlink; then follow "Corrective Action Plan Addendum Revision"

hyperlink). Taken together, the CAP and the Revised CAP Addendum set forth the remedial technologies that are designed to abate any remaining impacts to the soil, groundwater, and Browns Creek and to prevent any future surface water impacts to Cupboard Creek.

Also on March 1, 2017, DHEC approved the Startup Plan for Surface Water Protection Measures: Revision 2 (the "Surface Water Protection Plan") for the site. (*See* App. 351, Weekly Startup Status Update.) PPL implemented this plan on March 6, 2017. (*Id.*) Pursuant to their Surface Water Protection Plan, PPL has now taken additional remedial actions, including: (1) installing reactive core mats at the two seeps identified near Browns Creek; and (2) initiating the biosparging system for each of the vertical sparging wells and in the two diffusion aerators in Browns Creek. (*See* App. 315-316, CH2M's 1/20/17 Ltr. to DHEC.) These remedial measures are designed and engineered to eliminate existing petroleum impacts to Browns Creek and to prevent additional constituents on the site from impacting Browns and Cupboard Creeks. (*See id.*)

### III. PLAINTIFFS' CLAIMS.

It is undisputed the Pipeline did not, and never has, discharge any gasoline, petroleum product, or any other pollutant directly into Browns Creek or Cupboard Creek. It is further undisputed the Pipeline leak was repaired in December 2014, and there have not been any recurring leaks since that time.

Plaintiffs' Complaint contends that jurisdiction under the Clean Water Act ("CWA") exists because Browns Creek and Cupboard Creek "are located in the path of groundwater flow from the spill site" (App. 7, Compl., ¶ 11.) Thus, the Complaint claims the remaining product in the soil and groundwater "ha[s] moved toward both streams and wetlands since the spill was first discovered, and [ ] continue[s] to move to the streams and wetlands." (App. 8, Compl., ¶ 16.) In response to this "movement," Plaintiffs contend that DHEC's oversight and enforcement of the remediation effort is inadequate and insufficient. Thus, Plaintiffs seek to utilize the District Court's power to impose injunctive relief in order to enforce their own remediation standards in lieu of South Carolina's regulatory requirements. (*See* App. 23-25, Compl.; App. 78, Mot. to Dismiss Br.) Significantly, Plaintiffs' requests for injunctive relief are nearly identical to their requests to DHEC in their November 28 letter, requests that were considered by the agency in its oversight of PPL's remediation action and plans. (*Compare* App. 23-24, Compl., *with* App. 191-205, Pl.'s 11/28/16 Ltr. to DHEC.) DHEC has not imposed all of those requests without modification, and Plaintiffs filed an action under the "citizen suit" provisions of the CWA (*i.e.*, 33 U.S.C. § 1365) in an effort to supersede DHEC's authority.

#### IV. THE DISTRICT COURT'S DECISION.

PPL moved to dismiss Plaintiffs' Complaint on a number of grounds, including for lack of subject matter jurisdiction and for failure to state a claim.<sup>5</sup> After briefing, including the receipt of amici briefs, the District Court granted PPL's motion and dismissed Plaintiffs' Complaint in its entirety.

The District Court found inadequate Plaintiffs' allegation that the repaired leak qualified as a "point source" of pollutants into navigable waters which would require a permit under the CWA. Noting that "[n]onpoint source pollution is generally excluded from CWA regulation and is left to the states," (App. 415, District Ct. Op. at 6 (*quoting* *Sierra Club v. BNSF Ry. Co.*, No. C13-967-JCC, 2016 WL 6217108, at \*8 (W.D. Wash. Oct. 25, 2016))), the District Court found several reasons why it lacked jurisdiction and why Plaintiffs' "point source" allegation was insufficient as a matter of law. First, it noted that Plaintiffs did not (and could not) contend that the Pipeline was still leaking. (*Id.*) Thus, while a pipeline could clearly be a potential "point source," here there was no allegation that leakage from the November 2014 release had "discharged petroleum directly into navigable waters." (App. 416, District Ct. Op. at 7.) The District Court also found that Plaintiffs could only allege that "there are continuing effects" from the

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<sup>5</sup> In addition to the grounds for dismissal that form the basis for this appeal, Defendants sought dismissal based on the grounds of primary jurisdiction and *Burford* abstention, neither of which were addressed by the District Court.

wholly *past* November 2014 Release, and that, at some point, these “effects” could impact a navigable water. However, the District Court found that these effects do not amount to “point source” discharge “directly” into the navigable waters of the United States so as to deprive the State of South Carolina of its regulatory authority and enable this kind of citizen suit. Indeed, the Complaint plainly alleged only a past discharge, rather than a present and continuing violation. As the

District Court noted:

At best, with respect to the pipeline, the Plaintiffs have alleged a past discharge of pollutants into the soil and groundwater that may migrate into navigable waters, which is insufficient to state a plausible claim that the pipeline is a point source in this case or that the pipeline will discharge pollutants into navigable waters.

(App. 417, District Ct. Op. at 8.)

Similarly, Plaintiffs’ contentions regarding the spill site, and any seeps, flows, or fissures from it, did not establish that these were point sources. Noting that a point source must be a “discernable, confined, and discrete” conveyance under the CWA, 33 U.S.C § 1362(14), the District Court found that there was no allegation that PPL acted to “channel or direct contaminants to navigable waters and there is no discrete mechanism conveying the pollutants to navigable waters.”

(App. 419, District Ct. Op. at 10.) To the contrary the District Court found that PPL “ha[s] undertaken efforts to remediate the spill site.” (*Id.*) Thus, while Plaintiffs may have alleged enough to establish a discrete source for the pollution,

they had failed to allege a discrete conveyance of pollutants into navigable waters such that federal jurisdiction would exist. (App. 420-421, District Ct. Op. at 11-12.)

The District Court then addressed Plaintiffs’ claim that the pollutants from the wholly past November 2014 Release were discharged into groundwater that was “hydrologically connected” to navigable waters<sup>6</sup> within the jurisdiction of the CWA. While Plaintiffs conceded that groundwater, by itself, is not within the jurisdiction of the CWA as a “water of the United States,” the allegation of a “hydrological connection” was, according to Plaintiffs, sufficient to confer such jurisdiction. Noting a split among the courts within this Circuit, along with the absence of a definitive opinion from this Court, and after a survey of other decisions, the District Court concluded that such a claim was too broad, based in large part on the statutory distinction between “navigable waters” and “ground water.” As the District Court noted:

To find that the pipeline directly discharged pollutants into the navigable waters under the facts alleged would result in the CWA applying to every discharge into the soil and groundwater no matter its location. All groundwater potentially flows downstream and will possibly at some point enter navigable waters....

(App. 417, District Ct. Op. at 8.)

<sup>6</sup> The District Court used the term “navigable waters” to refer to waters of the United States that are subject to the CWA. Other courts cited below use the term “surface waters” and thus both terms are used synonymously to refer to waters of the United States that are subject to the CWA.

Thus, and put simply, the District Court based its decision in this part of the case on the reality that since nearly all groundwater eventually flows to navigable waters, a mere allegation of a "hydrological connection" would eviscerate the statutory distinction between the two, and would effectively sweep all groundwater into the definition of "navigable water" under the CWA.

Plaintiffs now ask this Court to find that the CWA authorizes them to supplant state-approved and supervised remediation efforts because the pollutants from a wholly past and discrete leak, which were released into the ground and not into any navigable water, may migrate to navigable water via hydrologically connected groundwater.

#### SUMMARY OF ARGUMENT

The CWA regulates discharges into "navigable waters" and "is the principal legislative source of the [Environmental Protection Agency's ("EPA")] authority—and responsibility—to abate and control water pollution." *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 491 (2d Cir. 2005). The EPA administers the CWA primarily through the National Pollutant Discharge Elimination System ("NPDES").

As used in the CWA, "'navigable waters' means the waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). The CWA does not expressly regulate groundwater or discharges to groundwater.

"Generally speaking, the NPDES requires dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the Nation's waters." *S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 102 (2004). Absent an NPDES permit, it is a violation of the CWA for any person to discharge any pollutants into the waters of the United States from a point source (*i.e.*, a discrete conveyance to those waters) without an NPDES permit. 33 U.S.C. §§ 1311(a), 1342(a), 1365(f)(6). Pursuant to 33 U.S.C. §§ 1251(b), 1342, the states may apply for authority to administer the NPDES program within their borders. If the agency charged with enforcing the CWA fails to remedy that violation, a citizen is permitted to file suit in federal court seeking injunctive relief and statutory penalties. Such suits, however, cannot be filed for past violations of the CWA. Instead, citizens suits must seek to address an ongoing violation.

In this case, Plaintiffs seek to apply the provisions of the CWA to a pipeline spill that occurred nearly three years ago which did not directly discharge any pollutants into any navigable water. They do so notwithstanding the state agency charged with environmental regulation (DHEC) has been overseeing PPL's remediation of the site, which efforts have been ongoing since the release was discovered. Plaintiffs' primary motivation in initiating this action is their opinion that DHEC's regulatory oversight has been inadequate.

In order to supplant DHEC's regulatory authority, Plaintiffs claim the November 2014 Release caused pollutants to enter the groundwater, those pollutants are migrating towards navigable waters, and, consequently, the migration results in pollutants being added to those waters. Plaintiffs claim that PPL is in violation of the CWA because it has not obtained a permit for the "discharge" of the pollutants through the groundwater and into navigable waters, notwithstanding the fact that there is no ongoing discharge from the pipeline. Thus, despite the fact that the pipeline has not leaked for nearly three years, Plaintiffs claim there is an ongoing discharge of pollutants for which PPL does not have a permit. (See App. 18, Compl. ¶ 49-50.) Plaintiffs further claim that the Pipeline was the necessary "point source" when it leaked three years ago and the groundwater acts as a "conveyance" to navigable waters. Alternatively, Plaintiffs argue that groundwater that is alleged to be "hydrologically connected" to navigable waters is subject to CWA jurisdiction and pollutants in such groundwater constitute a violation of the CWA and Plaintiffs may file their lawsuit.

If permitted to stand, Plaintiffs' theories would effectively eradicate much of the states' role and jurisdiction in the regulation of groundwater and the environment. Under Plaintiffs' various theories, *any* spill of any pollutant *anywhere* may be subject to CWA permitting, even if it occurs miles from a

navigable water. This is so because, unless it is intercepted or perched,<sup>7</sup> all groundwater eventually flows to some navigable water. Moreover, since these flows can take significant periods of time, a one-time discharge that lasted even minutes is potentially subject to this type of citizen suit for years thereafter.

The simple reality is the CWA's jurisdictional reach is not boundless. It regulates discharges into navigable waters, but does not regulate groundwater. Moreover, citizen suits may only address ongoing violations, not violations that occurred in the past. The ingenuity of counsel in creating "hydrological connected groundwater" as a term wholly distinct from groundwater cannot redefine the limits of this jurisdiction.

The District Court properly rejected Plaintiffs' attempt to make the reach of citizen suits under the CWA without principled bounds. This Court should do the same.

#### STANDARD OF REVIEW

Plaintiffs conflate the standard of review in this matter to that which is applicable only to Motions to Dismiss brought pursuant to Fed. R. Civ. P. 12(b)(6). In so doing, they fail to acknowledge the District Court found that it lacks subject matter jurisdiction, and *they* bear the burden of proving the existence of subject

<sup>7</sup> Perched water is an accumulation of groundwater located above a water table in an unsaturated zone. It is subsurface water trapped in a lens of more porous material surrounded by impermeable material in the unsaturated zone above the water table.

matter jurisdiction. See *Lovern v. Edwards*, 190 F.3d 648, 654 (4th Cir. 1999).

When a defendant challenges subject matter jurisdiction, “the district court is to regard the pleadings’ allegations as mere evidence on the issue, and may consider evidence outside the pleadings without converting the proceeding to one for summary judgment.” *Richmond, Fredericksburg & Potomac R.R. Co. v. United States*, 945 F.2d 765, 768 (4th Cir. 1991). The court should grant a Rule 12(b)(1) motion “if the material jurisdictional facts are not in dispute and the moving party is entitled to prevail as a matter of law.” *Evans v. B.F. Perkins Co., a Div. of Stander Int’l Corp.*, 166 F.3d 642, 647 (4th Cir. 1999). Thus, while the District Court’s decision is reviewed by this Court on a *de novo* basis, see *Sucamp Pharm., Inc. v. Astellas Pharma, Inc.*, 471 F.3d 544, 550 (4th Cir. 2006) (“We review a district court’s grant of a motion to dismiss under Rule 12(b)(1), (3), or (6) *de novo*”), Plaintiffs are not entitled to a review in which their allegations of subject matter jurisdiction are “accept[ed] as true.” (App. Brief at 8.) Moreover, even under the more deferential standard of review provided by Rule 12(b)(6), conclusory allegations made by Plaintiffs are “not entitled to be assumed true.” *Ashcroft v. Iqbal*, 556 U.S. 662, 681 (2009). Nor should the Court “accept as true allegations that contradict matters properly subject to judicial notice or by exhibit.” *Yeney v. Myche*, 293 F.3d 726, 730 (4th Cir. 2002) (internal quotation marks omitted).

## ARGUMENT

Plaintiffs’ claims are founded on a single, accidental release of petroleum from the Pipeline into the soil on the site in November 2014. That leak was repaired immediately after it was discovered. There has been no additional product released from the Pipeline at the site since that time. DHEC has been actively overseeing PPL’s remediation of the site, and will continue to do so until the effects of the release at issue have been remediated and DHEC determines that no further action is required. It was not until 2016 – two years after the spill occurred, the pipeline was repaired, and remediation work under DHEC’s supervision had begun – that Plaintiffs concluded the clean-up plan was inadequate from their perspective.<sup>8</sup> (App. Br. at 6)

To establish a violation of the CWA, Plaintiffs must allege: (1) the discharge (*ie.*, addition); (2) of a pollutant; (3) into navigable waters; (4) from a point source; (5) without a permit. *Assateague Coastkeeper v. Alan and Kristin Hudson Farm*, 727 F. Supp. 2d 433, 444 (D. Md. 2010) (quoting *Comm. to Save Mokeelumne River v. E. Bay Mun. Util. Dist.*, 13 F.3d 305, 308 (9th Cir. 1993)). A party is only “in violation” of the CWA if all five of these elements are present at

<sup>8</sup> Plaintiffs are conservation groups whose total membership is not disclosed. Similarly, there is no disclosure of the number of members who live in the affected area or even who live in South Carolina. (App. 15-16, Compl.). Thus, it is not clear whether the opinion that the clean-up is inadequate is the opinion of one person, 100 people, or is held by anyone who actually lives in the area of the spill.

the same time. Moreover, the Supreme Court has made plain that: (1) the CWA does not confer jurisdiction over citizen suits that are based on “wholly past” violations; and (2) the CWA’s purpose in authorizing citizen suits is “to abate pollution when the government cannot or will not command compliance.” *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 62, 67 (1987).

The District Court in this case correctly recognized that Plaintiffs’ Complaint is deficient in each of three fatal ways. First, the District Court found it lacked subject matter jurisdiction over the November 2014 Release because it is a wholly past violation of the CWA that cannot give rise to a citizen suit. (See App. 414-418, District Ct. Op.) Second, it determined, to the extent Plaintiffs alleged an “ongoing discharge,” that discharge was not actionable under the CWA because there are no point sources conveying pollutants to Browns Creek or Cupboard Creek. (App. 418-421, District Ct. Op.) Finally, the District Court rejected Plaintiffs’ argument regarding CWA jurisdiction over discharges into groundwater that is hydrologically connected to a navigable water.<sup>9</sup> (App. 421-425, District Ct. Op.) All of these conclusions are correct.

<sup>9</sup> This Court need not reach this hydrological connection issue if it determines, as it should, that the November 2014 discharge from the Pipeline is a “wholly past” violation that cannot give rise to a CWA citizen suit, and that the “Spill Site” is not a point source under the CWA.

# **I. THE DISTRICT COURT PROPERLY CONCLUDED IT LACKED SUBJECT MATTER JURISDICTION OVER THE NOVEMBER 2014 RELEASE FROM THE PIPELINE.**

There is no dispute that, in November 2014, a pollutant (*i.e.*, petroleum product) was released at the site. There is also no dispute that “a pipeline can be a point source.” (App. 416, District Ct. Op.) The fatal flaw in the Plaintiffs’ Complaint – which is also an undisputed fact – is that the Pipeline is not presently discharging anything and has not discharged anything for nearly three years. As the District Court correctly held, there is no subject matter jurisdiction because “there is no continuing discharge from the pipeline and the [Plaintiffs] have failed to allege any facts to support the position that the pipeline discharged petroleum directly into navigable waters.”<sup>10</sup> (App. 416, District Ct. Op.)

## **A. The November 2014 Release Is Not Actionable Under the CWA Because It Is Neither Ongoing Nor Reasonably Likely to Occur Again.**

The District Court’s conclusion that it does not have jurisdiction over Plaintiffs’ claims should be affirmed because it is supported by two unassailable and dispositive facts. First, the Pipeline was repaired shortly after the leak was discovered. Second, nothing has leaked out of the Pipeline or into the soil or

<sup>10</sup> The District Court did not – as Plaintiffs contend – “[h]old] that the gasoline pipeline is not a point source.” (*Contra* App. Br. at 8.) Rather, it held that, regardless of the Pipeline’s status as a point source, it did not have jurisdiction because there was no ongoing discharge from the Pipeline into navigable waters. (App. 416, District Ct. Op.)

groundwater at the site in nearly three years. Thus, the discharge about which Plaintiffs complain is wholly past. The Supreme Court has expressly held that the CWA does not authorize citizen suits for violations that – like this one – are wholly past. *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 62, 67 (1987).

I. The CWA Does Not Confer Jurisdiction for Wholly Past Violations.

The Supreme Court has held that a citizen suit can only be based on “a state of either continuous or intermittent violation – that is, a reasonable likelihood that a *past* polluter will continue to pollute in the future.” *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 57 (1987) (emphasis added).

In *Gwaltney*, the plaintiffs filed a citizen suit against the defendant for repeatedly discharging pollutants that exceeded the effluent limitations set forth in its NPDES permit. *Id.* at 52. Those violations, however, were not ongoing at the time that the plaintiffs filed suit. *See id.* at 53. Significantly, the defendant had already installed new equipment to control and prevent discharges by the time the suit was filed. *Id.* at 53-54. The Supreme Court found that the CWA only authorizes citizen suits where the defendant is alleged “to be in violation” of the Act, and such language necessarily means that the CWA only authorizes citizen suits “to enjoin or otherwise abate an ongoing violation.” *Id.* at 59. In other words, the CWA does not confer federal jurisdiction for citizen suits based upon

“wholly past violations.” *Id.* at 67; *see also Highlands Conservancy v. E.R.O., Inc.*, No. A:90-0489, 1991 WL 698124, at \*4 (S.D.W. Va. Apr. 18, 1991) (“[T]he Clean Water Act does not confer federal jurisdiction over citizen suits for wholly past violations.”). Where – as is the case here – a complaint is devoid of allegations of “an ongoing violation,” that complaint should be dismissed. *See, e.g., Brewer v. Raven*, 680 F. Supp. 1176, 1183 (M.D. Tenn. 1988) (dismissing the plaintiff’s complaint because they “failed to make even a threshold good-faith allegation of continuous or intermittent violation of the CWA”).

Plaintiffs’ Complaint is based on a single release that occurred in November 2014, and that ceased nearly three years ago. (*See* App. 99, CSA; *see also* App. 83, Interim CAP.) Plaintiffs do not contend that there is an ongoing release of product *from* the Pipeline. Nor do they allege that this section of the Pipeline is likely to release product in the future. Rather, their Complaint alleges only there are continuing *effects* from a past discharge. Indeed, Plaintiffs now argue:

[E]ven if the point source is no longer releasing gasoline, as long as the pollution discharged from the point source continues to flow into the waterway, Kinder Morgan remains in violation of the Clean Water Act.

(App. Br. at 11.) Significantly, Plaintiffs do not provide any authority to support this claim. Nor does any exist. To the contrary, of the two circuit courts that have addressed this issue, *both* have held that the effects of past discharges are insufficient to confer jurisdiction under the CWA because they do not satisfy the



CWA's current violation requirement. See *Conn. Coastal Fishermen's Ass'n v. Remington Arms Co.*, 989 F.2d 1305, 1313 (2d Cir. 1993) (holding that the decomposition of previously discharged lead shotgun pellets in the Long Island Sound could not satisfy *Gwalney's* present violation requirement); *Hanker v. Diamond Shamrock Chem. Co.*, 756 F.2d 392, 397 (5th Cir. 1985) (finding that a single past discharge of oil with continuing effects on groundwater did not satisfy the CWA's present violation requirement).<sup>11</sup>

In *Hanker v. Diamond Shamrock Chem. Co.*, the Court of Appeals addressed a situation virtually identical to that presented here, and concluded dismissal was warranted because there was no ongoing violation. 756 F.2d at 397. The *Hanker* defendants owned a pipeline that leaked oil for a period of two weeks. *Id.* at 394. After the leak was discovered, the defendants' employees stopped it and sought to remediate the discharge. *Id.* The plaintiffs, however, alleged that those efforts were grossly inadequate and resulted in perpetuating rather than

<sup>11</sup> Though the Court of Appeals' decision in *Hanker* predates the Supreme Court's ruling in *Gwalney* by approximately two years, the *Hanker* court interpreted the CWA in the same way that the *Gwalney* court did – as requiring a present violation. Compare *Gwalney*, 484 U.S. at 59 (“The harm sought to be addressed by the citizen suit lies in the present or the future, not in the past”) with *Hanker*, 756 F.2d at 397 (“By its ordinary meaning the language of section 1365 and the structure of the [CWA] convince us that a complaint brought under section 1365 must allege a violation occurring at the time the complaint is filed”). In fact, the Supreme Court granted certiorari in *Gwalney* to resolve a “three-way conflict in the Circuits” regarding whether the CWA applied to wholly past violations and ultimately adopted the same interpretation used by the *Hanker* court. *Gwalney*, 484 U.S. at 54-56, 59.

alleviating the contamination. *Id.* They also alleged – as Plaintiffs have here – that the defendants operated the pipeline negligently, and continued to do so. *Id.* The Court of Appeals upheld the district court's dismissal on subject matter jurisdiction grounds because there was no ongoing violation:

Because the complaint here does not allege that Diamond Shamrock is “in violation” of an effluent standard, limitation or order, as required by section 1365, the *Hankers* fail to state allegations sufficient to support jurisdiction in this case. The *Hankers*, as they must, base their federal law claims on section 1365 of the [CWA], which permits citizen suits where the defendant is “alleged to be in violation of . . . an effluent standard or limitation under . . . [the CWA] or . . . an order issued by the Administrator or a State with respect to such a standard or limitation. . . .” 33 U.S.C. § 1365(a)(1). However, for the reasons discussed below, even if the *Hankers' complaint is liberally interpreted as alleging a past discharge of oil by Diamond Shamrock with continuing negative effects as well as continued negligent operation of the pipeline, the complaint does not satisfy section 1365's requirement that the defendant be alleged to be “in violation” of an effluent standard, limitation or order.*

*Id.* at 394-95 (emphasis added). This case is indistinguishable from *Hanker* and this Court should find no differently in upholding the District Court's decision to dismiss Plaintiffs' Complaint.

Plaintiffs argue that the District Court misread and misapplied the Court of Appeals' decision in *Hanker* because the plaintiffs' complaint in that case “did not allege a continuing discharge,” as does the Conservation Groups' Complaint.” (App. Br. at 25 (quoting *Hanker*, 756 F.2d at 397)). Plaintiffs' conclusory allegation of a “continuing discharge” is neither binding nor dispositive,

particularly on a Rule 12(b)(1) motion where the allegations in a complaint are regarded “as mere evidence on the issue.” *Richmond, Fredericksburg & Potomac R.R. Co.*, 945 F.2d at 768. The incontrovertible truth and undisputed fact in this case is that there is no “ongoing” discharge, only a single release from the Pipeline which was fully repaired long before Plaintiffs brought this action.

2. PPL Cannot Be “In Violation” of the CWA Because the Pipeline Has Been Repaired.

Plaintiffs wrongly contend that there need not be an ongoing release from the Pipeline, and PPL remains “in violation” of the CWA as long as product that was discharged in the past continues to migrate toward Browns Creek and Cupboard Creek. (App. Br. at 11-17.) Taken to its logical end, Plaintiffs essentially argue PPL is presently violating the CWA because it does not have a permit now for a discharge that occurred three years ago, from a pipeline that is not currently discharging anything. This illogical argument – requiring a defendant to obtain a permit or be in violation of the CWA for something that is no longer occurring – is based on a misreading of the case law.

First, the District Court’s decision in this case is not – as Plaintiffs contend – contrary to this Court’s recent decision in *Goldfarb v. Mayor of Baltimore*, 791 F.3d 500 (4th Cir. 2015). Not only was *Goldfarb* a Resource Conservation and

Recovery Act (“RCRA”) case,<sup>12</sup> rather than a CWA case, it involved allegations of prior pollution being concentrated, exacerbated, and caused to migrate by *ongoing* construction activities. *Id.* at 505. In other words, there can be no question that the discharge in *Goldfarb* – which was caused by the active construction activities – was ongoing as a consequence of actions that were still occurring. Indeed, the plaintiffs in that case alleged the defendants’ “construction activities would continue to contribute to and exacerbate existing contamination in the soil and groundwater, as well as its migration to [neighboring properties].” *Id.*

Such is not the case here. As the District Court noted, “there is no allegation that the Defendants have affirmatively undertaken any action to channel or direct contaminants to navigable waters and there is no discrete mechanism conveying pollutants to navigable waters.” (App. 419, District Ct. Op.) Further, PPL’s “placement of recovery wells and remediation efforts undertaken under the oversight of the SCDHEC is not a discernable, confined, or discrete conveyance of pollutants to navigable waters subject to NPDES permitting requirements.” (App. 420, District Ct. Op.) Plaintiffs did not (and cannot) allege PPL is engaged in any ongoing actions that are causing the migration of any pollutant. To the contrary,

<sup>12</sup> It should be noted that Plaintiffs simultaneously rely on RCRA cases, while ignoring a case involving the Oil and Pollution Act of 1990 (the “OPA”), even though Congress and the courts have recognized that: (1) the OPA and the CWA both use the terms “discharge” and “navigable water” in the same way; and (2) those terms are intended to be interpreted identically. See *Rice v. Harken Exploration Co.*, 250 F.3d 264, 267 (5th Cir. 2001).

PPL has undertaken extensive remedial measures engineered to eliminate existing petroleum impacts to Browns Creek and the groundwater and to prevent additional petroleum constituents in the groundwater at the site from impacting Browns and Cupboard Creeks.<sup>13</sup> (See *supra* Statement of the Case at 8-10; see generally DEHC Website).

Second, Plaintiffs cite to a number of dredge and fill cases to support their claim that, even though the Pipeline has been repaired, PPL remains in violation of the CWA “as long as the pollution discharged from the point source continues to flow into the waterway.” (App. Br. at 11; see *id.* at 16-17.) Other courts, however,

<sup>13</sup> Plaintiffs contend that PPL has reported “two large unpermitted streams of contaminated water: one 30 foot by 12 seep and one 12 foot by 12 foot seep” that are conveying contaminants to surface water at the site. (See App. Br. at 3.) Plaintiffs’ use of the word “streams” is a gross mischaracterization of actual site conditions that are reported and described in PPL’s reports and by DHEC. What PPL reported to DHEC was the presence of intermittent groundwater seeps in or near the banks of Browns Creek. As Plaintiffs are aware – by virtue of their own inspections of the site and Browns Creek and a plethora of publically available information – there are not, and have never been, any “streams” of contaminated water into Browns Creek. Plaintiffs are similarly aware that the actual impact to Browns Creek is limited to areas already being remediated by PPL and that the contaminants have not migrated downstream. On February 28, 2017 – at Plaintiffs’ request – DHEC sampled surface waters at and downstream of Browns Creek. The results from that sampling event “did not detect petroleum contaminants above risk-based screening levels downstream from the release” and that impacts are limited to “three locations in Brown’s [sic] Creek.” DHEC further noted these three locations “are included in [PPL’s] routine sampling as part of the ongoing site assessment and cleanup; the results from this sampling event are consistent with data from prior sampling events” and the “contaminants found at these locations are expected to decrease over time with the operation of the biosparging and aeration system.” (See DHEC Website (follow “Surface Water Sampling Event” hyperlink)).

have recognized that dredge and fill cases are inherently different from cases involving the discharge of petroleum products, especially when it comes to determining whether a CWA violation is “ongoing” under *Gwaltney*. See *City of Mountain Park, Ga. v. Lakeside at Ansley, LLC*, 560 F. Supp. 2d 1288, 1296 (N.D. Ga. 2008) (distinguishing *N.C. Wildlife Fed’n v. Woodbury*, No. 87-584-Civ-5, 1989 WL 106517 (E.D.N.C. 1989) – a dredge and fill case – from cases involving “discharges of a leachate plume or petroleum products” (internal citations omitted)).<sup>14</sup> As one court noted:

The majority of cases dealing with fill materials appear to adopt the approach taken in *Woodbury* of deeming the pollution “ongoing” as long as the polluting fill material remains in the water. In contrast, most of the decisions taking the stricter interpretation of “wholly past” violations employed in *Remington* have involved pollutants other than fill materials.

*Id.* (internal citations omitted). This is a logical distinction because, in dredge and fill cases, courts have found that it is not the act of dredging and filling that determines whether defendants are in violation of the CWA, but the act of purposefully retaining pollutants on defendants’ property without taking remedial measures. See, e.g., *Woodbury*, 1989 WL 106517, at \*2 (“Treating the failure to take remedial measures as a continuing violation is eminently reasonable.”); see also *Cache v. Town of Harrison, N.Y.*, 813 F. Supp. 1037, 1042 (S.D.N.Y. 1993)

<sup>14</sup> Significantly, *Woodbury* is the primary dredge and fill case that Plaintiffs cite in support of their position here.

("[T]he disposal of wastes can constitute a continuing violation as long as no proper disposal procedures are put into effect. . . ."). Here, indisputably, PPL is actively remediating the release. In other words, the cases on which Plaintiffs rely are distinguishable because those cases involve parties intentionally dumping contaminated fill onto a property and not taking remedial actions, as opposed to a party, with a one-time accidental release from a Pipeline, actively engaged in remediation under the supervision of a state agency charged with enforcing the CWA.

The majority of the dredge and fill cases on which Plaintiffs rely are also distinguishable for another, more fundamental reason – they are governmental enforcement actions.<sup>15</sup> (See App. Br. at 16-17.) This is a significant distinction because, unlike citizen suits, "[e]nforcement] actions by the government *can* be based on wholly past violations." *Chesapeake Bay Found., Inc. v. Gwaltney of Smithfield, Ltd.*, 890 F.2d 690, 696 (4th Cir. 1989) (emphasis added); *see also*

<sup>15</sup> See, e.g., *United States v. Reeves*, 923 F. Supp. 1530, 1534 (M.D. Fla. 1996) ("[T]he Government contends that Defendant's unlawful actions constitute a continuing violation of the CWA, as long as the illegal fill remains in place."); *Sasser v. EPA*, 990 F.2d 127, 128 (4th Cir. 1993) ("Sasser seeks to set aside a final order of the Administrator of the [EPA] assessing Class II penalties for reimpounding freshwater tidal wetlands without a permit."); *United States v. Cumberland Farms of Conn, Inc.*, 647 F. Supp. 1166, 1183 (D. Mass. 1986), *aff'd*, 826 F.2d 1151 (1st Cir. 1987) (involving a governmental suit against a farming corporation for violations of the CWA); *United States v. Tull*, 615 F. Supp. 610, 612 (E.D. Va. 1983), *rev'd on other grounds*, 481 U.S. 412 (1987) ("The government asserts that in filing of the wetlands without a permit the defendant has violated the requirements of the [CWA].").

*Miss. R. Revival, Inc. v. City of Minneapolis*, 145 F. Supp. 2d 1062, 1067 (D. Minn. 2001) ("The government remains free to seek civil penalties for all past CWA violations even if a CWA citizen suit is dismissed as moot"). The mere fact that the government has enforced the CWA with respect to dredge and fill cases after the dredging and filling has ceased in no way supports Plaintiffs' claim they can bring a citizen suit related to a discharge that occurred in the past.

Plaintiffs' reliance on *Marrero Hernandez v. Esso Standard Oil Co. (Puerto Rico)*, 597 F. Supp. 2d 272 (D.P.R. 2009), is similarly misplaced. The plaintiffs in *Marrero Hernandez* filed suit in connection with gasoline leaks emanating from underground storage tanks at a gas station. *See id.* at 267-77. The court – basing its decision on Justice Scalia's concurring opinion in *Gwaltney*, rather than the majority opinion – stated that "[w]hen a company has violated an effluent standard or limitation, it remains for purposes of [§ 1365(a)] 'in violation' of that standard or limitation so long as it has not put in place remedial measures that clearly eliminate the cause of the violation." *Id.* at 286 (quoting *Gwaltney*, 484 U.S. at 69 (Scalia, J., concurring)). Even assuming that this was the law (which it is not), it is undisputed PPL has already eliminated "the cause of the violation" by repairing the Pipeline. Moreover, PPL is actively engaged in remedial measures to address the effects of the prior release.

The central truth – from which Plaintiffs cannot escape – is that their Complaint alleges only one wholly past *discharge* from a point source. Both before and after *Gwalmey*, courts across the country have held that the “migration of residual contamination from previous releases does not constitute an ongoing discharge.” *Wilson v. Amoco Corp.*, 33 F. Supp. 2d 969, 975 (D. Wyo. 1998), *see also Aiello v. Town of Brookhaven*, 136 F. Supp. 2d 81, 120-21 (E.D.N.Y. 2001) (dismissing a CWA citizen suit against a past polluter “for the ongoing migrating leachate plume”); *Crigler*, 2010 WL 2696506, at \*5; *Friends of Santa Fe City v. LAC Minerals, Inc.*, 892 F. Supp. 1333, 1354 (D.N.M. 1995) (“Migration of residual contamination resulting from previous releases is not an ongoing discharge within the meaning of the [CWA]”). The same is true here. Holding otherwise “would undermine the CWA’s limitations as set forth in the statute’s definition of point source and the Supreme Court’s holding in *Gwalmey*.” *Wilson*, 33 F. Supp. 2d at 121.

**B. Plaintiffs Do Not Allege Any Facts Evidencing a Discharge of a Pollutant from a Point Source into Any Navigable Waters.**

Contrary to Plaintiffs’ assertions, the District Court did not determine that the CWA requires that a “point source discharge directly into a waterway.” (App. Br. at 18.) Instead, the District Court correctly concluded that Plaintiffs did not “allege any facts to support the position that the pipeline discharged petroleum

directly into navigable waters.” (App. 416, District Ct. Op.)<sup>16</sup> As the District Court noted, “the pipeline leaked petroleum into the ground and the contaminants are migrating through the soil and groundwater at the [site].” (App. 417, District Ct. Op.) Yet, Plaintiffs ask that their Complaint be interpreted - - notwithstanding their allegations - - to contend that a discharge into a navigable water via an indirect movement of pollutants towards those waters (*i.e.*, groundwater) from a past spill is actionable under the CWA. (App. Br. at 18.)

This precise issue was addressed in *Tri-Ready Co. v. Ursinus College*, No. 11-5885, 2013 WL 6164092 (E.D. Pa. Nov. 21, 2013).<sup>17</sup> There, the plaintiff alleged that heating oil had leaked from the defendant’s underground storage tanks and migrated through the subsurface soil, where it contaminated the plaintiff’s land and water. No. 11-5885, 2013 WL 6164092, at \*1 (E.D. Pa. Nov. 21, 2013). The court concluded:

<sup>16</sup> Plaintiffs fault the District Court for addressing whether PPL was *directly* discharging pollutants into navigable waters, (App. Br. at 17-18), when that language came *directly* from their Complaint. (See App. 21-22, Compl., ¶ 62 (alleging that Appellees “are discharging contaminated pollutants directly . . . into Browns Creek, adjacent wetlands, and other downstream waters”). The District Court simply used the term “directly” to distinguish between allegations in the Complaint of a discharge to soil and groundwater, which are not subject to the CWA, and discharges from a point source which reach a navigable water via a discrete conveyance and, thus, are subject to the CWA. (See App. 416-17, 419 District Ct. Op.)

<sup>17</sup> Plaintiffs wrongly represent that *Tri-Ready Co.* is an “unreported decision.” (See App. Br. at 25.) Though only a Westlaw citation is available for that decision, it is still a reported decision. When a case is unpublished or unreported, Westlaw generally indicates that the case has been designated as unpublished or unreported.

Tri-Ready can only plausibly allege a discharge of oil directly into the soil (that is, dry land) or—more speculatively, but nonetheless plausibly—into groundwater that is in direct contact with the underground tanks. The fact that this oil may then have migrated through the soil and groundwater . . . to flow into the allegedly “navigable waters” of Burn Hollow Run, does not necessarily transform the original release of oil into a discharge of a pollutant into navigable waters for the purposes of federal regulation, unless the Court concludes that groundwaters *themselves* are navigable waters subject to CWA and OPA regulations, or (for the purposes of CWA, but *not* the OPA), that Tri-Ready has adequately alleged that pollutants have reached Burn Hollow Run or the Perikomen Creek through an intermediate “point source.”

*Id.* at \*6 (emphasis in original). After considering the plaintiff’s arguments, the court found that “the tanks are the only ‘point source’ from which the oil was discharged directly by Urisinus.” *Id.* at \*7. It reached that decision because “[a] discharge of pollutants into navigable waters occurring only through migration of groundwater and uncontrolled soil runoff represents ‘nonpoint source’ pollution.” *Id.* There is no difference here.

By Plaintiffs’ own admission, the Pipeline released product into the soil and groundwater, and that product then migrated through the soil and groundwater toward Browns Creek and Cupboard Creek. (See App. 7-8, Compl., ¶¶ 10, 16.) As in *Tri-Ready Co.*, the only plausible discharge of product that Plaintiffs have alleged is directly into the soil and/or the groundwater under the site. That this product “may then have migrated through the soil and groundwater” into Browns Creek does not transform the original release of product into a discharge of a

pollutant into navigable waters for purposes of the CWA. *Tri-Ready Co.*, 2013 WL 6164092, at \*1.

**II. ANY ONGOING “DISCHARGE” PLAINTIFFS SEEK TO REDRESS IS NOT ACTIONABLE UNDER THE CWA BECAUSE IT DOES NOT EMANATE FROM A POINT SOURCE.**

Before the District Court, Plaintiffs, perhaps in tacit recognition that they have no cognizable claim with respect to the November 2014 Release, repackaged their claim by arguing that areas of soil and groundwater contaminated from the release were themselves “point sources.” (See, e.g., App. 21-22, Compl., ¶ 62 (“[T]he area soaked with and contaminated by Defendants’ leaked gasoline and petroleum products . . . and the seeps, flows, fissures, and channels are point sources that continue to discharge pollution into surface water and wetlands in violation of the Clean Water Act.”)) In their Opening Brief, however, they have abandoned those arguments by failing to address them. See *United States v. Al-Hamdi*, 356 F.3d 564, 571 n.8 (4th Cir. 2004) (“It is a well settled rule that contentions not raised in the argument section of the opening brief are abandoned”). Nevertheless, this Court *should* address those issues and should uphold the District Court’s determination that neither the “Spill Area”<sup>18</sup> nor the contaminated groundwater are, themselves, point sources.

<sup>18</sup> The Plaintiffs define the “Spill Area” or “Spill Site” as “...the area soaked with and contaminated by [PPL’s] leaked gasoline and petroleum products...” (App. 19, Compl., ¶ 56.)

The “discharges” alleged by Plaintiffs squarely fall within the definition of nonpoint source pollution. This is so because “[d]ischarge from migrations of groundwater or soil runoff is not point source pollution.” *Chesapeake Bay Found., Inc. v. Seversial Sparrows Point, LLC*, 794 F. Supp. 2d 602, 619-20 (D. Md. 2011); *see also PennEnvironment v. PPG Indus., Inc.*, 964 F. Supp. 2d 429, 454-55 (W.D. Pa. 2013) (stating the same); *Sierra Club v. El Paso Gold Mines*, 421 F.3d 1133, 1141 n.4 (10th Cir. 2005) (“Groundwater seepage that travels through fractured rock would be nonpoint source pollution, which is not subject to NPDES permitting.”); *Potter v. Asarco Inc.*, No. 8:96CV555, 1999 WL 33537055, at \*2 (D. Neb. Apr. 23, 1999) (finding that groundwater discharges are not discharges from a point source and thus not within the scope of the CWA); *Friends of Santa Fe Cty. v. LAC Minerals*, 892 F. Supp. 1333, 1359 (D.N.M. 1995) (holding that seepage of pollutants through soil into groundwater was not a point source, and thus not subject to NPDES permitting requirements). Rather it is “nonpoint source pollution,” and “[t]here is no basis for a citizen suit for nonpoint source discharges under the CWA.” *Chesapeake Bay Found., Inc.*, 794 F. Supp. 2d at 620.

The Fifth Circuit Court of Appeals’ decision in *Hanker* specifically addressed this issue in an analogous context:

[E]ven liberally construed, the complaint alleges only a single past discharge with continuing effects, not a continuing discharge. However, even if the complaint is construed to allege a continuing seepage into groundwater of the now-dispersed leaked oil, we cannot

say this amounts to a continuing violation of section 1311 because that section prohibits only “discharges of any pollutant,” which in turn are defined in section 1362(12) to be “any addition of any pollutant to navigable waters, from any point source.” A “point source” is a “discernible, confined and discrete conveyance, including but not limited to any pipe . . . .” No continuing addition to the ground water from a point source is alleged, nor could it be alleged under the facts set forth in this complaint. Rather, the complaint alleges, necessarily, only that there are continuing effects from the past discharge, and such an allegation is insufficient for purposes of section 1365.

*Id.* at 397 (internal citations omitted, emphasis original).

No petroleum has been released from the Pipeline to the site since its repair. Tellingly, the Complaint alleges only that the product released in 2014 “is making its way into groundwater supplies, wetlands, and surface waters in Anderson County and the Savannah River watershed” (App. 7-8, Compl., ¶ 10.) Yet, even when construing the Complaint in this way – as alleging a continuing seepage of the now-dispersed leaked product into the groundwater and the surface water – those allegations fail to state an actionable CWA claim because they do not involve a discharge from a *point source*. At most, Plaintiffs’ Complaint alleges that there are continuing *effects* from the past release. Holding that migration of residual contamination from a previous release constitutes an ongoing discharge “would undermine the CWA’s limitations as set forth in the statute’s definition of point source and the Supreme Court’s holding in *Gwaltney*.” *Wilson*, 33 F. Supp. 2d at 975.

Plaintiffs incorrectly argue that the Spill Area and contaminated groundwater qualify as point sources because a point source “need only convey the pollutant to ‘navigable waters.’” (App. 18-19, Compl., ¶ 52 (quoting *S. Fla. Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 105 (2004))). The CWA, however, is clear that a point source must also be a “discernable, confined, and discrete conveyance,” (i.e., a “pipe, ditch, channel, tunnel, conduit, well, [etc.]”). 33 U.S.C. § 1362(14). In this context, the cases on which Plaintiffs rely for this proposition have no bearing on the issues at hand because they deal with the question of whether a party discharging pollutants through “discrete conveyance” can be held liable under the CWA even if it was not the original source of the pollutant. See, e.g., *S. Fla. Water Mgmt. Dist.*, 541 U.S. at 105 (holding that a state water management agency’s pumping of already polluted water into a navigable water is actionable under the CWA); *W. Va. Highlands Conservancy, Inc. v. Huffman*, 625 F.3d 159, 168 (4th Cir. 2010) (finding that the West Virginia Department of Environmental Protection needed a NPDES permit for discharges from abandoned coal mining sites it had reclaimed, noting that the DEP acknowledged that the outfalls in question had the characteristics of a point source, and that the CWA does not include a “causation requirement”); *United States v. Earth Sci., Inc.*, 599 F.2d 368, 374 (10th Cir. 1979) (holding that unintentional overflows from a mining operation’s machinery were regulated by

the CWA); *O’Leary v. Moyer’s Landfill, Inc.*, 523 F. Supp. 642, 655 (E.D. Pa. 1981) (finding that leachate from a landfill was regulated by the CWA even though the landfill owner did not intend for the leachate to escape). Contrary to the allegations of the Complaint, the fact that the Spill Area and the contaminated groundwater may convey product to navigable water does not render them point sources because they are not “discernable, confined, and discrete conveyance[s]” 33 U.S.C. § 1362(14).

Simply stated, Plaintiffs cannot transform what is a wholly past discharge into an ongoing violation of the CWA by characterizing the soil and the groundwater as point sources when clear precedent states that they are non-point sources and thus not governed by the CWA.

### III. THE CWA DOES NOT REGULATE DISCHARGES INTO GROUNDWATER, EVEN IF IT IS “HYDROLOGICALLY CONNECTED” TO SURFACE WATERS.

Plaintiffs concede the CWA does not regulate discharges into groundwater.<sup>19</sup> (See App. Br. at 31 (“[T]he definition of ‘navigable waters’ does not include groundwater.”)). Yet, they challenge the District Court’s holding that the CWA

<sup>19</sup> Established law supports this concession. See, e.g., *Chevron U.S.A. Inc. v. Apex Oil Co., Inc.*, 113 F. Supp. 3d 807, 817 (D. Md. 2015) (“As several courts have observed, in other provisions of the CWA, Congress refers to ‘navigable waters’ and ‘ground waters’ as separate concepts, thus indicating that Congress considered them to be distinct.”); see also 33 U.S.C. § 1252(a) (referring to “navigable waters *and* ground waters” (emphasis added)); 33 U.S.C. § 1254(a)(5) (referring to the same); 33 U.S.C. § 1256(e)(1) (referring to the same).



does not regulate discharges into groundwater that is hydrologically connected to surface water. (App. Br. at 26-27.) Said differently, while Plaintiffs admit that the CWA does not regulate discharges into groundwater, they create another class of water that they contend CWA does regulate, *i.e.*, groundwater with an alleged “hydrological connection” to surface waters. In Plaintiffs’ view, groundwater is no longer “groundwater” if there may be a hydrological connection to surface waters.

As an initial matter, the Court need not reach this issue if it concludes – as it should, and as the District Court did – that the only discharge actionable under the CWA in this case (*i.e.*, from the Pipeline to the soil/groundwater) is wholly past and, thus, is not an appropriate basis for a citizen suit. In other words, it does not matter whether discharges to groundwater that is hydrologically connected to navigable waters are actionable under the CWA where, as is the case here, that discharge is “wholly past.” Should the Court reach this issue, however, it is evident that the District Court’s decision was correct.

*4. Every Circuit Court That Has Confronted the Hydrological Connection Issue Has Rejected the Arguments Plaintiffs Make Here.*

This Court has not considered whether the CWA encompasses groundwater that is hydrologically connected to surface waters. (App. 422, District Ct. Op.) Yet, as the District Court noted, *both* of the circuit courts that have addressed this

issue “have concluded that navigable waters does not include groundwater that is hydrologically connected to surface waters.”<sup>20</sup> (*Id.*)

In *Rice v. Harken Exploration Co.*, the Fifth Circuit confronted the question of whether the Oil Pollution Act of 1990 authorized citizen suits related to the discharge of petroleum products into groundwater that is hydrologically connected to surface waters.<sup>21</sup> 250 F.3d 264 (5th Cir. 2001). The defendant in *Rice* was engaged in the exploration, pumping, processing, transporting, and drilling of oil. *Id.* at 265. The plaintiffs alleged that the defendant had discharged, and continued to discharge, pollutants into several nearby creeks and other “independent ground and surface waters.” *Id.* The Court of Appeals first noted that groundwater is not “within the class of waters protected by the CWA.” *Id.* at 269. It then proceeded to address the plaintiffs’ argument that “discharges have seeped through the ground into groundwater which has, in turn, contaminated several bodies of surface

<sup>20</sup> A third court of appeals also addressed this issue and held that the CWA does not apply to groundwater. *United States v. Johnson*, 347 F.3d 157, 161 n.4 (1st Cir. 2006). That decision, however, was subsequently withdrawn, vacated, and remanded on other grounds. See *United States v. Johnson*, 467 F.3d 56 (1st Cir. 2006).

<sup>21</sup> The “discharge” and “navigable water” analysis under the OPA is identical to that used in CWA cases. See *Rice*, 250 F.3d at 267 (“The legislative history of the OPA and the textually identical definitions of ‘navigable waters’ in the OPA and the CWA strongly indicate that Congress generally intended the term ‘navigable waters’ to have the same meaning in both the OPA and the CWA. Accordingly, the existing case law interpreting the CWA is a significant aid in our present task of interpreting the OPA.”).

water.” *Id.* at 270. In other words, the plaintiffs in *Rice* argued – as Plaintiffs argue here – that discharges into hydrologically connected groundwater can support a citizen suit.<sup>22</sup> The Court of Appeals disagreed, holding that such discharges are not actionable:

So far as here relevant, the “discharges” for which the OPA imposes liability are those “into or upon the navigable waters.” As noted, “navigable waters” do not include groundwater. It would be an unwarranted expansion of the OPA to conclude that a discharge onto dry land, some of which eventually reaches groundwater and some of the latter of which still later may reach navigable waters, all by gradual, natural seepage, is the equivalent of a “discharge” “into or upon the navigable waters.”

*Id.* at 271.

Similarly, the Seventh Circuit, in *Vill. of Oconomowoc Lake v. Dayton Hudson Corp.*, 24 F.3d 962 (7th Cir. 1994), found that discharges into groundwater are not regulated by the CWA, *even if* that groundwater is hydrologically connected with surface waters. The plaintiff in that case sought to stop the construction of a warehouse that included a plan to collect rainwater runoff in a six-acre artificial pond that would retain petroleum products and other pollutants while “exfiltrating” the water to the ground below. *Id.* at 964. The Court of Appeals’ holding could not have been clearer: “*Neither the Clean Water Act nor*

<sup>22</sup> Plaintiffs discount the Fifth Circuit’s decision in *Rice* because they “do not contest” that groundwater is not *per se* a water of the United States. (App. Br. at 33.) Yet they fail to acknowledge that the *Rice* court also adjudicated the question of discharges into hydrologically connected groundwater, which is the precise question they ask this Court to decide.

*the EPA’s definition asserts authority over ground waters, just because these may be hydrologically connected with surface waters.” Id.* at 965 (emphasis added).

Plaintiffs largely ignore the Seventh Circuit’s holding in *Vill. of Oconomowoc Lake*, claiming that it is “irrelevant” because it “do[es] not address the issue of discharges of pollutants to admittedly jurisdictional surface waters through directly-connected groundwater.” (App. Br. at 33.) That claim, however, cannot be squared with the Seventh Circuit’s plain statement that the CWA does not assert authority over groundwater that is hydrologically connected to surface waters. *See Vill. of Oconomowoc Lake*, 24, F.3d at 965. Instead, Plaintiffs argue that another Seventh Circuit opinion, *U.S. Steel Corp. v. Train*, 556 F.2d 822 (7th Cir. 1977), supports their argument.<sup>23</sup> That case, however, does not involve a citizen suit. Nor did that decision address whether discharges into hydrologically connected groundwater are actionable under the CWA. Rather, *U.S. Steel Corp.* merely stands for the proposition that the EPA has the authority to control disposals into deep wells when it is already administering a NPDES permit program concerning surface discharges. *Id.* at 852. In contrast, *Vill. of Oconomowoc Lake* *did* involve a citizen suit, and the court in that case expressly

<sup>23</sup> The Seventh Circuit has since abandoned its decision in *U.S. Steel Corp.* on other grounds. *See City of W. Chicago, Ill. v. U.S. Nuclear Regulatory Comm’n*, 701 F.2d 632, 644 (7th Cir. 1983).

held that the CWA does not confer jurisdiction over discharges into groundwater that is hydrologically connected to surface waters. *Vill. of Oconomowoc Lake*, 24 F.3d at 965.

Plaintiffs' reliance on the Tenth Circuit's decision in *Quivira Mining Co. v. EPA*, 765 F.2d 126 (10th Cir. 1985), is similarly misplaced. That case also did not involve a citizen suit. Nor did it address whether discharges into groundwater which may be hydrologically connected to surface waters are actionable under the CWA. The issue in *Quivira Mining Co.* was whether two transitory streams qualified as "waters of the United States" for purposes of the CWA. *See id.* at 128-29. The Tenth Circuit found that, though Arroyo del Puerto and San Mateo Creek are not "navigable-in-fact," they still qualify as "waters of the United States" because "during times of intense rainfall, there can be a surface connection between the Arroyo del Puerto, San Mateo Creek and navigable-in-fact streams," and because, when the waterways are dry on the surface, "the flow continues regularly through underground aquifers fed by the surface flow . . . into navigable-in-fact streams." *Id.* at 130. Here, unlike *Quivira Mining Co.*, there are no surface waters - - transitory or not - - through which pollutants are conveyed to navigable waters, nor any allegation of such transitory surface stream conveyances. Thus, the Tenth Circuit's decision in *Quivira Mining Co.* has no bearing on the issues now before this Court.

**B. *The Most Persuasive District Court Decisions Have Similarly Held That the CWA Does Not Confer Jurisdiction Over Hydrologically Connected Groundwater.***

While the circuit courts that have addressed this issue to date have unanimously rejected Plaintiffs' "hydrological connection" argument, lower courts – including those in the Fourth Circuit – have split on the question of whether the CWA encompasses groundwater that is hydrologically connected to surface waters. (App. 422-424, District Ct. Op.) Plaintiffs predictably focus on those cases in which courts have broadly read the CWA as applying to discharges into hydrologically connected groundwater. Yet, that is only half of the story. As the District Court properly concluded below, "a narrower interpretation of 'navigable waters' is more persuasive." (App. 424, District Ct. Op.)

Plaintiffs cite to several cases which have found that discharges from a point source to groundwater that is hydrologically connected to surface waters are actionable under the CWA. *See, e.g., Sierra Club v. Va. Elec. And Power Co.*, No. 2:15-CV-112, 2017 WL 1095039 (E.D. Va. Mar. 23, 2017); *Sierra Club v. Va. Elec. & Power Co.*, 145 F. Supp. 3d 601, 607-08 (E.D. Va. 2015); *Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC*, 141 F. Supp. 3d 428, 445 (M.D.N.C. 2015). Those cases, however, all deal with coal ash storage areas alleged to be continuously leaching contaminants into groundwater that migrates

into adjacent surface waters.<sup>24</sup> This is a factually distinct scenario from the one at issue here. Specifically, the coal ash storage areas in the cases cited by Plaintiffs are alleged to be *point sources that continue to discharge pollutants* while the Pipeline at issue here *has not discharged any pollutants for nearly three years*. Thus, regardless of the merits of such an interpretation, the factual differences between those cases and this render them without value.

Moreover, the courts that have held that groundwater is not regulated by the CWA or the OPA, even if it is hydrologically connected to surface waters (including those in this circuit), have engaged in a more sure-footed reading of both Congressional intent and the Supreme Court's case law. See, e.g., *Chevron U.S.A. Inc. v. Apex Oil Co., Inc.*, 113 F. Supp. 3d 807, 816-17 (D. Md. 2015) ("Congress did not intend for groundwater to fall within the purview of 'navigable water,' even if it is hydrologically connected to a body of 'navigable water.'"); *Cape Fear River Watch, Inc.*, 25 F. Supp. 3d at 810 ("Congress did not intend for the CWA to extend federal regulatory authority over groundwater, regardless of whether that groundwater is eventually . . . 'hydrologically connected' to navigable surface waters"); *Tri-Ready Co.*, 2013 WL 6164092, at \*9 (stating the same);

<sup>24</sup> The same is true for the coal ash pond that is the subject of the recently concluded trial in the Middle District of Tennessee. See *Tenn. Clean Water Network v. Tenn. Valley Auth.*, No. 3:15-CV-00424, 2017 WL 3476069 (M.D. Tenn. Aug. 4, 2016).

*Umatilla Waterquality Prot. Ass'n v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1320 (D. Ore. 1997) (stating the same). These decisions have been based on a thorough analysis of the language and legislative history of the CWA, many other courts' examinations of the issue, and the impact of the Supreme Court's ruling in *Rapanos v. United States*, 547 U.S. 715 (2006). See, e.g., *Cape Fear River Watch, Inc.*, 25 F. Supp. 3d at 809-10; *Tri-Ready Co.*, 2013 WL 6164092, at \*9 n.7.

In *Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc.*, the district court held that "Congress did not intend for the CWA to extend federal regulatory authority over groundwater, regardless of whether that groundwater is eventually or somehow 'hydrologically connected' to navigable surface waters." 25 F. Supp. 3d at 810. The court in that case based its decision on the Justice Scalia's opinion in *United States v. Rapanos. Id.* Indeed, it reasoned that:

The plurality holding in *Rapanos* repeatedly admonishes the lower courts and the Corps for attempting to expand the definition of navigable waters to encompass virtually all water, regardless of its actual navigability, location, or consistency of flow. The Supreme Court also reiterates that, in *Riverside Bayview*, it held that the phrase "waters of the United States" "referred primarily to 'rivers, streams, and other hydrographic features more conventionally identifiable as waters' than the wetlands adjacent to such features." "Likewise, in both *Riverside Bayview* and *SWANCC*, [the Supreme Court] repeatedly described the 'navigable waters' covered by the [CWA] as 'open water' and 'open waters.'"

... In *Rapanos*, the Court does not endorse a broad interpretation of the term navigable waters, and sets forth tests that will exclude some wetlands from the scope of the CWA. Thus, this court is satisfied that groundwater (which is even less fairly described as "open water" or a

conventionally understood hydrographic or geographic “feature” than any wetland) does not fall within the meaning of the statute.

*Id.* at 809-10 (internal citations omitted).

Another district court in the Fourth Circuit – in *Chevron U.S.A., Inc. v. Apex*

*Oil Co., Inc.* – provided a detailed explanation as to why it found “the narrower interpretation” of the term “navigable water” – which excludes groundwater – more persuasive:

First, such a reading finds more support in statutory language of the CWA. As several courts have observed, in other provisions of the CWA, Congress refers to “navigable waters” and “ground waters” as separate concepts, thus indicating that Congress considered them to be distinct. Second, the legislative history of the CWA indicates that Congress chose not to regulate groundwater, in part because “the jurisdiction regarding groundwaters is so complex and varied from State to State.”

Finally, this narrower interpretation of “navigable waters” is supported by the Supreme Court’s ruling in *Rapanos v. United States*, [547 U.S. 715 (2006)]. There, the Court considered what standard to apply in order to determine if certain wetlands constitute “navigable waters” under the CWA. In setting forth tests that excluded some wetlands from the scope of the CWA, the Supreme Court eschewed a broad interpretation of “navigable waters” and repeatedly cautioned against “attempting to expand the definition of navigable waters to encompass virtually all water, regardless of its actual navigability, location, or consistency of flow.”

113 F. Supp. 3d at 817 (internal citations omitted).<sup>25</sup>

<sup>25</sup> Plaintiffs also argue that dismissal was inappropriate because the District Court should have conducted a factual inquiry into the extent, if any, of the hydrological connection between the Spill Area and Browns Creek. (See App. Br. at 36.) Such an inquiry is unnecessary and immaterial if this Court concludes that groundwater is not subject to the CWA even if it is hydrologically connected to a navigable water.

Although Plaintiffs suggest that these cases are outliers, these cases faithfully follow the Supreme Court’s clear direction, which was recently reiterated in an order of the Executive Branch issued by the President of the United States. Executive Order 13,778 issued on February 28, 2017, which directs the EPA “shall consider interpreting the term “navigable waters,” as defined in 33 U.S.C. 1362(7), in a manner consistent with the opinion of Justice Antonin Scalia in *Rapanos v. United States*, 547 U.S. 715 (2006).” Exec. Order No. 13,778, 82 Fed. Reg. 41 (Feb. 28, 2017).

**C. Applying the CWA to Discharges into Groundwater That Is Hydrologically Connected to Surface Waters Would Be Unworkable.**

Accepting Plaintiffs’ interpretation of CWA jurisdiction would necessitate requiring a NPDES permit whenever a pollutant is discharged into hydrologically connected groundwater (*i.e.*, any groundwater) without regard to when and how far in the past the spill occurred and would create an unprecedented expansion of the EPA’s regulatory jurisdiction. Such an interpretation would transform the NPDES permitting system into a federal vehicle through which the authority of state regulatory agencies could be usurped by citizen groups whenever any spill occurred.

Remediation of groundwater is already regulated by multiple state and federal laws enforcement regimes. For example, the following provide authority

for state and federal environmental enforcement agencies to require groundwater remediation:

- The Resource Conservation and Recovery Act of 1976. *See* 42 U.S.C. §§ 6901, *et seq.*;
- The Comprehensive Environmental Response, Compensation, and Liability Act. *See* 42 U.S.C. §§ 9601, *et seq.*;
- The many and varied State groundwater protection statutes and regulatory regimes.<sup>26</sup>

Finding that the CWA also applies to discharges into groundwater that is alleged to be hydrologically connected to surface water (*i.e.*, *all* groundwater) would interfere with many of these laws and regulations and subject parties like PPL to overlapping, and even contradictory, discharging, operating, monitoring, reporting, and permitting requirements. It would also ignore the legislative history of the CWA, which indicates that Congress chose not to regulate groundwater, in part, because “the jurisdiction regarding groundwaters is so complex and varied from State to State.” S. Rep. No. 92-414 (1972), *as reprinted in* 1972 U.S.C.A.N. 3668, 3739.

Since the CWA was enacted in 1972, the EPA has not required NPDES permits for, *inter alia*, underground injection control (“UIC”) wells, cesspools,

<sup>26</sup> Moreover, and as discussed extensively above and in Defendants’ arguments to the District Court in support of abstention, the petroleum release to the soil and groundwater at the site is being remediated pursuant to South Carolina law and under the direction and oversight of DHEC. (*See* DHEC Website (follow “Response and Assessment Actions” hyperlink); *see also* App. 71-80, Mot. to Dismiss Br.)

underground storage tanks, and septic systems.<sup>27</sup> Yet, under Plaintiffs’ interpretation, anyone that operates or owns any of these would be required to obtain an NPDES permit because every one of those systems has the potential to leak or is directly discharging into groundwater that can be alleged to be hydrologically connected to surface water. There are millions of individuals and businesses in this country that use UIC wells, cesspools, underground storage tanks, and septic systems which are legally operating pursuant to the various programs.<sup>28</sup> If this Court accepts the argument the CWA applies to discharges into allegedly hydrologically connected groundwater, every one of those millions of people and businesses will be required to apply to the EPA or an authorized state for a NPDES permit, *just in case* there is an accidental leak or discharge or *just in case* an already authorized discharge may be to groundwater which may be hydrologically connected to surface water.

The impact that this reading would have is profound, as exemplified by even a cursory analysis of its effects on residents of South Carolina’s low country. Thousands of low country residents have septic systems for their residential homes and thousands of these systems were installed directly adjacent to lakes, rivers,

<sup>27</sup> EPA’s website states: “Individual homes that are connected to a municipal system, use a septic system, or do not have a *surface* discharge do not need an NPDES permit...” (emphasis added). *See* <https://www.epa.gov/laws-regulations/summary-clean-water-act> (last visited August 25, 2017).

<sup>28</sup> *See, e.g.*, S.C. Code Ann. Regs. 61-56.

streams, creeks, bays and even the ocean, leaving little doubt these systems are or could impact surface waters. Sewage is expressly included in the definition of “pollution” and a septic tank is a “point source.” However, EPA has never applied the CWA’s NPDES program to these systems. Many of those residents do not have the financial means or ability to even get a NPDES permit from the EPA. Yet, their failure to do so could result in crippling financial sanctions, and even criminal penalties, if their septic system leaches into the surrounding groundwater that is hydrologically connected to navigable waters. Moreover, even if a fraction of the homeowners with septic systems applied to EPA or authorized state for NPDES permits, that new volume of permit applications, and the corresponding need for oversight, would overwhelm the agencies’ existing staff and resources.

The Supreme Court previously addressed and rejected a similar attempt to interpret an existing pollution control statute – the Clean Air Act (the “CAA”) – in a way that would drastically increase EPA’s regulatory regime. The case of *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427 (2014), involved EPA’s attempt – in 2007 – to increase the scope of the CAA’s Prevention of Significant Deterioration (“PSD”) provisions to apply to greenhouse-gas emissions. *Id.* at 2430-31. The Supreme Court rejected this interpretation of the CAA for reasons relevant to the present case:

The fact that EPA’s greenhouse-gas-inclusive interpretation of the PSD and Title V triggers would place plainly excessive demands on limited governmental resources is alone a good reason for rejecting it; but that is not the only reason. EPA’s interpretation is also unreasonable because it would bring about an enormous and transformative expansion in EPA’s regulatory authority without clear congressional authorization. When an agency claims to discover in a long-extant statute an unheralded power to regulate “a significant portion of the American economy,” we typically greet its announcement with a measure of skepticism. We expect Congress to speak clearly if it wishes to assign to an agency decisions of vast economic and political significance.

*Id.* at 2444 (internal quotation marks and citations omitted). The Court’s rational in *Util. Air Regulatory Grp.* applies equally here and similarly justifies rejecting Plaintiffs’ overly broad and unsupported reading of the CWA.

Finally, using a mere allegation of “hydrological connection” to expand federal jurisdiction effectively obliterates any distinction between groundwater – which Congress explicitly did not intend the CWA to regulate – and navigable waters. Nearly all groundwater, unless it is extracted, ultimately flows to navigable water. In the most literal sense of the term, most groundwater is “hydrologically connected” to navigable waters. Plaintiffs propose no principled method that could distinguish between groundwaters that are or are not subject to CWA regulation. Rather, they propose a system in which the ingenuity of attorneys in alleging a “hydrological connection,” no matter how tenuous it may be, changes the nature of groundwater into something that apparently is no longer groundwater and hence subject to CWA jurisdiction. This ingenuity would, at its

logical extent, make citizen groups the regulators of groundwater under the CWA and supplant the authority of state agencies that are charged with protection and regulation of groundwater.

### CONCLUSION

For the reasons set forth herein, PPL respectfully requests that this Court affirm the District Court's dismissal of Plaintiffs' Complaint.

Respectfully submitted this the 1st day of September, 2017.

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### CERTIFICATE OF COMPLIANCE

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Dated: September 1, 2017

/s/ Richard E. Morton  
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**CERTIFICATE OF FILING AND SERVICE**

I hereby certify that on this 1st day of September 2017, I caused this Brief of Appellees to be filed electronically with the Clerk of the Court using the CM/ECF System, which will send notice of such filing to the following registered CM/ECF users:

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I further certify that on this 1st day of September 2017, I caused the required copies of the Brief of Appellees to be hand filed with the Clerk of the Court.

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IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF SOUTH CAROLINA  
ANDERSON DIVISION

Upstate Forever and Savannah Riverkeeper, )  
)  
Plaintiffs, ) C.A. No. 8:16-4003-HMH  
)  
)  
vs. )  
)  
Kinder Morgan Energy Partners, L.P. and )  
Plantation Pipe Line Company, Inc., )  
)  
)  
Defendants. )

**OPINION & ORDER**

This matter is before the court on the Defendants' motion to dismiss the Plaintiffs' complaint. In their complaint, Plaintiffs Upstate Forever and Savannah Riverkeeper allege that Defendants Kinder Morgan Energy Partners, L.P. ("Kinder Morgan") and Plantation Pipe Line Company, Inc. ("PPL") have violated the Clean Water Act ("CWA"), 33 U.S.C.

§§ 1251-1376, through the unlawful discharge of gasoline, gasoline and petroleum substances, and other contaminants that have ultimately flowed into the waters of the United States.<sup>1</sup> The Defendants have moved to dismiss for failure to state a claim for relief pursuant to Rule 12(b)(6) and for lack of subject matter jurisdiction pursuant to Rule 12(b)(1) of the Federal Rules of Civil Procedure. Further, the Defendants argue that the Plaintiffs' claims for injunctive relief should be dismissed based on primary jurisdiction abstention and Burford abstention.<sup>2</sup> After review, the court grants the Defendants' motion to dismiss.

<sup>1</sup>The Plaintiffs filed the instant case pursuant to the citizen suit provisions of the CWA set forth in 33 U.S.C. § 1365.

<sup>2</sup>Burford v. Sun Oil Co., 319 U.S. 315 (1943).

I. FACTUAL AND PROCEDURAL BACKGROUND

This is an action arising out of a petroleum leak from PPL's pipeline on property owned by Eric and Scott Lewis, which is located in Anderson County, South Carolina near Belton, South Carolina (the "spill site"). (Compl. ¶ 1, ECF No. 1); (Def's. Mem. Supp. Mot. Dismiss 1, ECF No. 14-1). PPL owns the 3,100 mile pipeline that runs underground through the property. (Id. ¶¶ 3-4, ECF No. 1). PPL is a subsidiary of Kinder Morgan. (Id. ¶ 4, ECF No. 1) In December 2014, a leak caused by the failure of a patch over a dent was discovered on the pipeline on the property. (Id. ¶ 5, ECF No. 1). The leak resulted in a discharge of an estimated 369,000 gallons of petroleum products. (Compl. ¶ 6, ECF No. 1). The pipeline leak was repaired within a few days of discovering the leak and remediation efforts commenced. (Def's. Mem. Supp. Mot. Dismiss 3, ECF No. 14-1)

South Carolina Department of Health and Environmental Control ("SCDHEC") is involved in the oversight and enforcement of remediation efforts. (Id., ECF No. 14-1.) To date, the Defendants have removed approximately 209,000 gallons of gasoline and petroleum products from the spill site. (Compl. ¶ 8, ECF No. 1). However, it is undisputed that gasoline and petroleum products remain at the spill site and that remediation is ongoing. The Plaintiffs allege that the leak has resulted in the contamination of Browns Creek, Cupboard Creek, and two wetlands located in the vicinity of the spill. (Id. ¶ 11, ECF No. 1.)

The Defendants filed the instant motion to dismiss on February 17, 2017. (Mot. Dismiss, ECF No. 14). The Plaintiffs responded in opposition on March 13, 2017. (Mem. Opp'n Mot. Dismiss, ECF No. 23). The Defendants filed a reply on March 20, 2017. (Reply, ECF No. 24). In addition, on March 7, 2017, the American Petroleum Institute ("API") and the

Association of Oil Pipe Lines ("AOPL") filed a motion for leave to file amici curiae brief in support of Defendants' motion to dismiss. (Mot. Leave File Amici Curiae, ECF No. 17.) The Plaintiffs responded in opposition to the motion for leave to file amici curiae brief on March 21, 2017. (Pls. Mem. Opp'n Mot. Leave, ECF No. 25.) AOPL filed a reply on March 27, 2017. (Reply, ECF No. 26.) The court granted API and AOPL's motion for leave on March 29, 2017. This matter is now ripe for consideration.

## II. DISCUSSION OF THE LAW

### A. Motion to Dismiss Standard

When presented with a Rule 12(b)(6) motion to dismiss, the court must restrict its inquiry to the sufficiency of the complaint rather than "resolve contests surrounding the facts, the merits of a claim, or the applicability of defenses." Republican Party of N.C. v. Markley, 980 F.2d 943, 952 (4th Cir. 1992). In order to survive a Rule 12(b)(6) motion, "a complaint must contain sufficient factual matter, accepted as true, to 'state a claim to relief that is plausible on its face.'" Ashcroft v. Iqbal, 556 U.S. 662, 678 (2009) (quoting Bell Atl. Corp. v. Twombly, 550 U.S. 544, 570 (2007)). "A claim has facial plausibility when the plaintiff pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged." Id. (citing Twombly, 550 U.S. at 556).

### B. Rule 12(b)(1) Standard

In addition, pursuant to Rule 12(b)(1) of the Federal Rules of Civil Procedure, a party may move to dismiss a cause of action based on lack of subject matter jurisdiction. Fed. R. Civ. P. 12(b)(1). Challenges to jurisdiction under Rule 12(b)(1) can be raised in two different ways: facial attacks and factual attacks. Thigpen v. United States, 800 F.2d 393, 401 n.15 (4th Cir. 1986) (citing Adams v. Bain, 697 F.2d 1213, 1219 (4th Cir. 1982)), disagreed with on other

grounds, Sheridan v. United States, 487 U.S. 392 (1988). A facial attack questions the sufficiency of the complaint. Id. In this context, the court must accept the allegations in the complaint "as true, and materials outside the pleadings are not considered." Id. Alternatively, a factual attack challenges the factual allegations in the complaint upon which subject-matter jurisdiction is based. Id. In this situation, the court is required to consider evidence outside the pleadings as well, without converting the motion to a motion for summary judgment. Id. Richmond, Fredericksburg & Potomac R.R. Co. v. United States, 945 F.2d 765, 768 (4th Cir. 1991). To prevent dismissal, "the nonmoving party must set forth specific facts beyond the pleadings to show that a genuine issue of material fact exists." Richmond, Fredericksburg & Potomac R.R. Co., 945 F.2d at 768. Thus, a dismissal should only be granted when "the material jurisdictional facts are not in dispute and the moving party is entitled to prevail as a matter of law." Id.

### C. CWA

To establish a CWA violation, plaintiffs must show the discharge of a pollutant into navigable waters from any point source "except as authorized by a permit issued under the National Pollution Discharge Elimination System (NPDES) program." Assateague Coastkeeper v. Alan & Kristin Hudson Farm, 727 F. Supp. 2d 433, 435 (D. Md. 2010); 33 U.S.C. §§ 1311(a), 1342, 1362(12); Sierra Club v. El Paso Gold Mines, Inc., 421 F.3d 1133, 1142 (10th Cir. 2005) ("To establish a violation of these sections, a plaintiff must prove that the defendant (1) discharged (2) a pollutant (3) into navigable waters (4) from a point source (5) without a permit."). The Defendants raise a number of arguments in support of their position that this case must be dismissed for lack of jurisdiction and failure to state a claim because the discharge of

petroleum products from the pipeline is not ongoing and was not a discharge of pollutants into navigable waters from a point source.

#### 1. Point Source

The Plaintiffs allege that the Defendants have violated the CWA by discharging pollution from a point source into navigable waters without a permit. (Compl. ¶ 64-66, ECF No. 1.) The Defendants contend that there was no requirement to possess a NPDES permit because there was and is no point source discharge of any pollutants into navigable waters. (Def's. Mem. Supp. Mot. Dismiss 11-14, ECF No. 14-1.)

Congress passed the Clean Water Act in 1972 to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. A central provision of the Act is its requirement that individuals, corporations, and governments secure National Pollutant Discharge Elimination System (NPDES) permits before discharging pollution from any point source into the navigable waters of the United States.

Decker v. Nw. Envtl. Def. Ctr., 133 S. Ct. 1326, 1331 (2013) (internal citations and quotation marks omitted). Pursuant to the CWA, "point source" means "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." 33 U.S.C. § 1362(14). "Discharge of a pollutant" means "any addition of any pollutant to navigable waters from any point source." § 1362(12). Under the CWA, navigable waters is "a defined term, and the definition is simply 'the waters of the United States.'" Rapanos v. United States, 547 U.S. 715, 730-31 (2006) (quoting 33 U.S.C. § 1362(7)). The Plaintiffs must allege more than merely identify a possible point source. The CWA requires that the Plaintiffs also allege that the point source actually added petroleum to navigable waters. See, e.g., Sierra Club v. BNSF Ry. Co.,

No. C13-967-JCC, 2016 WL 6217108, at \*7 (W.D. Wash. Oct. 25, 2016) ("Based on the statutory language, Plaintiffs must do more than point to a statutorily defined point source to prove that there was actual addition of [petroleum] to the waters. They must also prove that there was a discharge to navigable waters.")

Nonpoint source pollution is generally excluded from CWA regulations and is left to the states to regulate through their own tracking and targeting methods. The reason for this is, in part, because nationwide uniformity in controlling non-point source pollution [is] virtually impossible and, in part, because Congress is reluctant to allow extensive federal intrusion into areas of regulation that might implicate land and water uses in individual states.

Id. at \*8 (internal citations and quotation marks omitted).<sup>3</sup> The CWA does not authorize a citizen suit for nonpoint source discharges. See, e.g., Chesapeake Bay Found., Inc. v. Seversal Sparrows Point, LLC, 794 F. Supp. 2d 602, 620 (D. Md. 2011) ("There is no basis for a citizen suit for nonpoint source discharges under the CWA."); see also Or. Nat. Res. Council v. U.S. Forest Serv., 834 F.2d 842, 849 (9th Cir. 1987) ("[W]e do not believe that the Act allows for the enforcement of state water quality standards, as affected by nonpoint sources, under the citizen suit provision.")

First, the Plaintiffs contend that "the pipeline is a point source because pollution released from it continues to make its way to waters of the United States." (Pls. Mem. Opp'n Mot. Dismiss 12, ECF No. 23.) (Compl. ¶ 62, ECF No. 1.) The Plaintiffs do not allege that the pipeline is presently leaking. It is undisputed that the underground pipeline leaked petroleum into the ground which has in turn led to contamination of the soil and groundwater. However,

<sup>3</sup>The CWA requires that the states implement a program for "controlling pollution added from nonpoint sources to the navigable waters within the State and improving the quality of such waters." 33 U.S.C. § 1329(b)(1).

the Plaintiffs must allege more than stating that pollutants ultimately may reach navigable waters.

The Plaintiffs are correct that a pipeline can be a point source. However, this is insufficient to state a claim for a CWA claim. The Plaintiffs must allege that the point source added pollutants to navigable waters. The Plaintiffs allege that "the area soaked with and contaminated by Defendants' leaked gasoline and petroleum products . . . and the seeps, flows, fissures, and channels are point sources that continue to discharge pollution into surface water and wetlands in violation of the Clean Water Act" (Id. ¶¶ 54-56, 62, ECF No. 1.) The Plaintiffs allege that the petroleum leaked into the groundwater and "[t]he groundwater contamination plume and the petroleum products have moved toward both streams and wetlands since the spill was first discovered, and they continue to move to the streams and wetlands." (Id. ¶ 16, ECF No. 1.) Further, the Plaintiffs allege that "[t]he gasoline that remains in the area of the spill is breaking down into the hazardous compounds that comprise gasoline—including benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether ("MTBE"), naphthalene, and other contaminants—and making its way into groundwater supplies, wetlands, and surface waters in Anderson County and the Savannah River watershed." (Id. ¶ 10, ECF No. 1.)

It is undisputed that the leak from the underground pipeline discharge has contaminated the soil and groundwater at the spill site. However, in the case at bar, there is no continuing discharge from the pipeline and the Plaintiffs have failed to allege any facts to support the position that the pipeline discharged petroleum directly into navigable waters. Hamker v. Diamond Shamrock Chem. Co., 756 F.2d 392, 397 (5th Cir. 1985) ("No continuing addition to the ground water from a point source is alleged, nor could it be alleged under the facts set forth

in this complaint. Rather, the complaint alleges, necessarily, only that there are continuing *effects* from the past discharge, and such an allegation is insufficient for the purposes of section 1365."). The migration of pollutants through soil and groundwater is nonpoint source pollution that is not within the purview of the CWA. See, e.g., Tri-Reality Co. v. Usinus Coll., Civil Action No. 11-5885, 2013 WL 6164092, at \*8 (E.D. Pa. Nov. 21, 2013) (unpublished) ("Diffuse downgradient migration of pollutants on top of or through soil and groundwater . . . is nonpoint source pollution outside the purview of the CWA").

In this case, the pipeline leaked petroleum into the ground and the contaminants are migrating through the soil and groundwater at the spill site. It is undisputed that the pipeline is no longer leaking. To find that the pipeline directly discharged pollutants into navigable waters under the facts alleged would result in the CWA applying to every discharge into the soil and groundwater no matter its location. All groundwater potentially flows downstream and will possibly at some point enter navigable waters. The Supreme Court in Rapanos found that the government's interpretation of the term "navigable waters" was overly broad and noted that "[t]he plain language of the [CWA] simply does not authorize [a] 'Land Is Waters' approach to federal jurisdiction." 547 U.S. at 734. The Plaintiffs "'Land Is Waters' interpretation of the CWA is overly broad and untenable." Id. At best, with respect to the pipeline, the Plaintiffs have alleged a past discharge of pollutants into the soil and groundwater that may migrate into navigable waters, which is insufficient to state a plausible claim that the pipeline is a point source in this case or that the pipeline will discharge pollutants into navigable waters. Further,

as set forth more fully below, the pollution that allegedly may reach navigable waters is nonpoint source pollution.

In addition, the Plaintiffs allege that the spill site and the seeps, flows, and fissures from the spill site are point sources. In other words, the Plaintiffs contend that the pollutants on top of the ground are a point source, and the pollutants in the ground are a point source.

Specifically, the Plaintiffs allege that point sources "need not be the original source of the pollutant; it need only convey the pollutant to navigable waters." S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians, 541 U.S. 95, 105 (2004) (internal quotation marks omitted); (P)s. Mem. Opp'n Mot. Dismiss 23, ECF No. 23.). However, the conveyance must be "discernible, confined, and discrete." 33 U.S.C. § 1362(14). In South Florida Water Management, the Supreme Court cited examples of point sources in the CWA that did not generate pollution such as "ditches, tunnels, and conduits, objects that do not themselves generate pollutants but merely transport them," which are all discrete conveyances. Id.; Sierra Club v. Abston Const. Co., 620 F.2d 41, 45 (5th Cir. 1980) ("Gravity flow, resulting in a discharge into a navigable body of water, may be part of a point source discharge if the miner at least initially collected or channeled the water and other materials. A point source of pollution may also be present where miners design spoil piles from discarded overburden such that, during periods of precipitation, erosion of spill pile walls results in discharges into a navigable body of water by means of ditches, gullies and similar conveyances, even if the miners have done nothing beyond the mere collection of rock and other materials. The ultimate question is whether pollutants were

discharged from 'discernible, confined, and discrete conveyance(s)' either by gravitational or nongravitational means. ").

The facts of this case are distinguishable from the line of cases cited by the Plaintiffs involving "discernible, confined and discrete conveyance[s]" such as pits, holding ponds, cesspools, and coal plants. (P)s. Mem. Opp'n Mot. Dismiss 12, ECF No. 23 (citing Consolidation Coal Co. v. Costle, 604 F.2d 239, 249-50 (4th Cir. 1979)), rev'd, EPA v. Nat'l Crushed Stone Ass'n, 449 U.S. 64 (1980)). In Sierra Club v. Virginia Electric and Power Co., the district court found that coal ash piles were a point source because

Dominion built the piles and ponds to concentrate coal ash, and its constituent pollutants, in one location. That one location channels and conveys arsenic directly into the groundwater and thence into the surface waters. Essentially, they are discrete mechanisms that convey pollutants from the old power plant to the river.

Civil Action No. 2:15-CV-112, 2017 WL 1095039, at \*7 (E.D. Va. Mar. 23, 2017).

In the case at bar, there is no allegation that the Defendants have affirmatively undertaken any action to channel or direct contaminants to navigable waters and there is no discrete mechanism conveying the pollutants to navigable waters. To the contrary, the Defendants have undertaken efforts to remediate the spill site. The soil and ground water is contaminated and allegedly migrating toward navigable waters. As noted above, migration of pollutants through soil and groundwater is nonpoint source pollution. See, e.g., Chesapeake Bay Found., 794 F. Supp. 2d at 619-20 ("Discharge from migrations of groundwater or soil runoff is not point source pollution. . . ."); Sierra Club v. El Paso Gold Mines, Inc., 421 F.3d 1133, 1140 n.4 (10th Cir. 2005) ("Groundwater seepage that travels through fractured rock would be

nonpoint source pollution, which is not subject to NPDES permitting.”); Nw. Envtl. Def. Ctr. v. Brown, 640 F.3d 1063, 1070 (9th Cir. 2011), rev’d on other grounds sub nom., Decker v. Nw. Envtl. Def. Ctr., 133 S. Ct. 1326 (2013) (“Stormwater that is not collected or channeled and then discharged, but rather runs off and dissipates in a natural and unimpeded manner, is not a discharge from a point source.”); Friends of Santa Fe City v. LAC Minerals, Inc., 892 F. Supp. 1333, 1359 (D.N.M. 1995) (finding that seepage of pollutants in soil to groundwater was not a point source).

Further, the Plaintiffs fail to cite any legal authority to support their argument that remediation efforts that are ongoing at the spill site are a point source. (Pls. Mem. Opp’n Mot. Dismiss 13, ECF No. 23.) The Defendants are not collecting or storing pollutants at the spill site in any discrete conveyance. The Defendants’ placement of recovery wells and remediation efforts undertaken under the oversight of the SCDHEC is not a discernible, confined, or discrete conveyance of pollutants to navigable waters subject to NPDES permitting requirements.<sup>4</sup> Moreover, to find otherwise, would discourage remediation of contamination.

Based on the foregoing, the spill site and the seeps, flows, and fissures from the spill site are not point sources because there are no factual allegations of a “discernible, confined and discrete conveyance” of pollutants to navigable waters. § 1362(14). The Plaintiffs have identified a discrete source for the pollution, but have failed to allege a discrete conveyance of

<sup>4</sup> Although SCDHEC has not commenced any civil or criminal action concerning the Defendants’ spill, it has been and continues to be heavily involved in the oversight and approval of remediation efforts at the site. (Compl. ¶¶ 36, 37, ECF No. 1.) (Pls. Mem. Opp’n Mot. Dismiss 4, ECF No. 23.)

pollutants into navigable waters. BNSF Ry., 2016 WL 6217108, at \*8 (finding that coal discharge to land and from land to water from passing trains were not point source discharges). Thus, the Defendants’ motion to dismiss is granted with respect to Plaintiffs’ claim that the Defendants violated the CWA by discharging pollutants into navigable waters without a NPDES permit.

## 2. Hydrological Connection

Second, the Plaintiffs allege that the Defendants have violated the CWA by discharging pollutants into groundwater that is hydrologically connected to surface waters. (Compl. ¶¶ 67-70, ECF No. 1.) The Plaintiffs do not appear to dispute that the CWA does not apply to groundwater alone. Rice v. Harken Exploration Co., 250 F.3d 264, 269 (5th Cir. 2001) (“The law in [the Fifth Circuit] is clear that ground waters are not protected waters under the CWA.”). The CWA defines “navigable waters” simply as “waters of the United States.” 33 U.S.C. § 1362(7).

Congress refers to “navigable waters” and “ground waters” as separate concepts, thus indicating that Congress considered them to be distinct. Second, the legislative history of the CWA indicates that Congress chose not to regulate groundwater, in part because “the jurisdiction regarding groundwaters is so complex and varied from State to State.”

Chevron U.S.A., Inc. v. Apex Oil Co., 113 F. Supp. 3d 807, 816 (D. Md. 2015) (citing 33 U.S.C. §§ 1252(a), 1254(a)(5), and 1256(e)(1) (referring to “navigable waters and ground waters”); S. Rep. No. 92-414 (1972), *as reprinted in* 1972 U.S.C.A.N. 3668, 3739).

The Plaintiffs contend that jurisdiction exists in this case because the CWA applies to pollutants that have flowed into surface waters through hydrologically connected groundwater.



District courts considering whether the CWA encompasses groundwater hydrologically connected to surface waters are split on this issue. Wash. Wilderness Coal. v. Hecla Mining Co., 870 F. Supp. 983, 990 (D. Wash. 1994) (citations omitted) (noting courts are split on the issue of whether tributary groundwater that is naturally connected to surface water is subject to CWA).

However, the two circuit courts to address this issue have concluded that navigable waters does not include groundwater that is hydrologically connected to surface waters. In Village of Oconomowoc Lake v. Dayton Hudson Corp., the Seventh Circuit held that the CWA does not apply to groundwater that is hydrologically connected to surface waters. 24 F.3d 962, 965 (7th Cir. 1994) ("The possibility of a hydrological connection cannot be denied, but neither the statute nor the regulations makes such a possibility a sufficient ground of regulation." (internal citations omitted)). In addition, the Fifth Circuit in Rice, held that "a generalized assertion that covered surface waters will eventually be affected by remote, gradual, natural seepage from the contaminated groundwater is insufficient to establish liability under the [Oil Pollution Act]" which utilizes "textually identical definitions of 'navigable waters'" as the CWA. 250 F.3d at 268-70, 272 (holding that "ground waters are not protected waters under the CWA" and noting that "the existing case law interpreting the CWA is a significant aid in our present task of interpreting the OPA").

The Fourth Circuit has not considered whether the CWA encompasses groundwater hydrologically connected to surface waters. Further, district courts within the Fourth Circuit are split on this issue. In Cape Fear River Watch, Inc. v. Duke Energy Progress, Inc., 25 F. Supp. 3d

798, 810 (E.D.N.C. 2014), the district court held that "Congress did not intend for the CWA to extend federal regulatory authority over groundwater, regardless of whether that groundwater is eventually or somehow 'hydrologically connected' to navigable surface waters." Further, in Cheyron, the district court held "that Congress did not intend for groundwater to fall within the purview of 'navigable water,' even if it is hydrologically connected to a body of 'navigable water.'" 113 F. Supp. 3d at 817; But see Yaddin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC, 141 F. Supp. 3d 428, 445 (M.D.N.C. 2015) (disagreeing with Cape Fear and finding that CWA jurisdiction extends to pollution of groundwater hydrologically connected to surface water); Ohio Valley Envtl. Coal. Inc. v. Pocahontas Land Corp., Civil Action No. 3:14-11333, 2015 WL 2144905, at \*8 (S.D. W. Va. May 7, 2015) (unpublished); Sierra Club v. Va. Elec. & Power Co., 145 F. Supp. 3d 601, 607 (E.D. Va. 2015); Sierra Club v. Va. Elec. & Power Co., Civil Action No. 2:15-CV-112, 2017 WL 1095039, at \*6 (E.D. Va. Mar. 23, 2017).<sup>5</sup>

<sup>5</sup>District courts in other circuits have also split on this issue. See, e.g., Umatilla Waterquality Protective Ass'n, Inc. v. Smith Frozen Foods, Inc., 962 F. Supp. 1312, 1320 (D. Or. 1997) (holding "that discharges of pollutants into groundwater are not subject to the CWA's NPDES permit requirement even if that groundwater is hydrologically connected to surface water"); Cooper Indus., Inc. v. Abbott Labs., No. 93-0193, 1995 WL 17079612, at \*4 (W.D. Mich. May 5, 1995) (unpublished) (same); But see Hawaii Wildlife Fund v. City of Maui, 24 F. Supp. 3d 980, 996 (D. Haw. 2014) (holding that "[i]t is the migration of the pollutant into navigable-in-fact water that brings groundwater under the [CWA]"); Hernandez v. Esso Standard Oil Co. (P.R.), 599 F. Supp. 2d 175, 181 (D.P.R. 2009) (holding that "the CWA extends federal jurisdiction over groundwater that is hydrologically connected to surface waters that are themselves waters of the United States"); Idaho Rural Council v. Bosma, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001) (same); Williams Pipe Line Co. v. Bayer Corp., 964 F. Supp. 1300, 1319 (S.D. Iowa 1997) (same); Ass'n Concerned Over Res. & Nature, Inc. v. Tenn. Aluminum Processors, Inc., No. 1:10-00084, 2011 WL 1357690, at \*17 (M.D. Tenn. Apr. 11, 2011) (unpublished) (same); Nw. Envtl. Def. Ctr. v. Grabhorn, Inc., No. CV-08-548-ST, 2009 WL 3672895, at \*11 (D. Or. Oct. 30, 2009) (finding that CWA covers discharges to navigable surface waters via hydrologically connected groundwater) (unpublished); Mt. Life Ins. Co. v.

The court agrees with the analysis in Cape Fear and Chevron and finds that a narrower interpretation of "navigable waters" is more persuasive. The statutory language supports this conclusion given that "navigable waters" and "ground waters" are separate and distinct concepts in the CWA. Further, as the court noted in Chevron,

this narrower interpretation of "navigable waters" is supported by the Supreme Court ruling in Rapanos v. United States. . . . There, the Court considered what standard to apply in order to determine if certain *wetlands* constitute "navigable waters" under the CWA. In setting forth tests that excluded some wetlands from the scope of the CWA, the Supreme Court eschewed a broad interpretation of navigable waters and repeatedly cautioned against "attempting to expand the definition of navigable waters to encompass virtually all water, regardless of its actual navigability, location, or consistency of flow."

113 F. Supp. 3d at 817 (quoting Cape Fear, 25 F. Supp. 3d at 809, and citing Rapanos, 547 U.S. 715, 733-34 (2006)).

The allegations in the Plaintiffs' complaint are factually similar to the allegations in Chevron,<sup>6</sup> involving a petroleum spill from an underground pipeline that contaminated the groundwater and migrated toward surface waters. 113 F. Supp. 3d at 816. In the instant complaint, the Plaintiffs allege that "the gasoline that remains in the area of the spill is breaking down into the hazardous compounds that comprise gasoline . . . and making its way into groundwater supplies, wetlands, and surface waters in Anderson County and the Savannah River watershed." (Compl. ¶ 10, ECF No. 1.) Further, the Plaintiffs allege that the "Defendants'

Mobil Corp., No. CIVA96CV1781RSP/DNH, 1998 WL 160820, at \*3 (N.D.N.Y. Mar. 31, 1998) (same).

<sup>6</sup> Although Chevron involved violations of the Oil Pollution Act as opposed to the CWA, as discussed previously, the Oil Pollution Act and the CWA utilize identical definitions of navigable waters and the court relied heavily on CWA cases.

pipeline and the Spill Site are contaminating groundwater, which is closely hydrologically connected to the surface water and the wetlands and which is conveying Defendants' petroleum pollution to the surface water and wetlands." (Id. ¶ 56, ECF No. 1.) The Plaintiffs contend that there are two streams and two wetlands located near the spill site and that "[t]hese water bodies are located in the path of groundwater flow from the spill site." (Id. ¶ 11, ECF No. 1.) In addition, the Plaintiffs submit that "[t]he groundwater contamination plume and the petroleum products have moved toward both streams and wetlands since the spill was first discovered, and they continue to move to the streams and wetlands." (Id. ¶ 16, ECF No. 1.) Further, the Plaintiffs allege that petroleum and petroleum products have been detected in Browns Creek. (Id. ¶ 17, ECF No. 1.) The complaint only alleges that petroleum leaked from the pipeline into the groundwater at the spill site is slowly migrating toward two creeks and two wetlands. As set forth above, the CWA does not apply to claims involving discharge of pollution to groundwater that is hydrologically connected to surface waters. As such, subject matter jurisdiction does not exist over Plaintiffs' CWA claim based on hydrological connection between groundwater and surface water.

For the reasons set forth above, the Plaintiffs' complaint is dismissed pursuant to Rules 12(b)(1) and 12(b)(6) of the Federal Rules of Civil Procedure.<sup>7</sup>

<sup>7</sup> Having found that the Plaintiffs' claims are subject to dismissal, the court declines to address the Defendants' remaining arguments.

It is therefore

**ORDERED** that the Defendants' motion to dismiss, docket number 14, is granted.

**IT IS SO ORDERED.**

s/Henry M. Hertong, Jr.  
Senior United States District Judge

Greenville, South Carolina  
April 20, 2017

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IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF SOUTH CAROLINA  
ANDERSON DIVISION

UPSTATE FOREVER and SAVANNAH  
RIVERKEEPER,

Civil Action No. 8:16-CV-04003-HMH

Plaintiffs,

v.

KINDER MORGAN ENERGY PARTNERS,  
L.P. and PLANTATION PIPE LINE  
COMPANY, INC.

Defendants.

**DEPENDANTS' BRIEF IN SUPPORT OF  
THEIR MOTION TO DISMISS  
PLAINTIFFS' COMPLAINT**

Defendants Kinder Morgan Energy Partners, L.P. ("KMEP") and Plantation Pipe Line Company, Inc. ("PPL") (collectively, "Defendants"), by and through the undersigned counsel and pursuant to Fed. R. Civ. P. 12(b)(1) and 12(b)(6), hereby submit this brief in support of their Motion to Dismiss (the "Motion") the Complaint filed by Plaintiffs Upstate Forever and Savannah Riverkeeper (collectively, "Plaintiffs"), in its entirety.

**INTRODUCTION**

On December 8, 2014, Defendants discovered that a permanent repair sleeve on the Plantation Pipe Line had failed and, as a result, approximately 370,000 gallons of petroleum product were released into the surrounding soil. Defendants fully repaired the pipeline within days. Defendants also immediately began remediating the area impacted by that release and have been engaged in active remediation efforts for over two years performed with the considerable oversight and approval of the South Carolina Department of Health and Environmental Control ("DHEC"). No petroleum was directly discharged into any of the surrounding streams or wetlands, and there have been no subsequent releases of petroleum from the repaired pipeline. Nevertheless, Plaintiffs have now initiated this citizen-suit against

Defendants for purported violations of the Clean Water Act (the "CWA") because some of the petroleum product released more than two years ago remains in the soil and has been detected in the nearby streams and wetlands. As set forth herein, the CWA does not provide federal jurisdiction for Plaintiffs' claims and, even if it did, Plaintiffs have failed to adequately allege a claim for any violation of the CWA. In addition, this Court may abstain from this matter as discussed further below.

**STATEMENT OF FACTS**

PPL – which is majority-owned and operated by KMEP – operates the Plantation Pipe Line, a 3,100-mile pipeline network that originates in Louisiana and ends in Washington, D.C. [See Doc No 1, ¶ 4.] A portion of that pipeline (the "Pipeline") is located in Anderson County, South Carolina, where it crosses a parcel of real property (the "Lewis Property") owned by Eric M. Lewis and Scott Lewis (collectively, the "Lewises").

In early December 2014, Defendants learned that a permanent repair sleeve on the Pipeline had failed and released approximately 370,000 gallons of petroleum product.<sup>1</sup> See S.C. Dep't of Health and Envtl. Control Website.<sup>2</sup> The product that leaked from the Pipeline – which is located approximately six to eight feet below the surface – was not directly discharged into any body of water, but rather, was released into the soil of the Lewis Property.<sup>3</sup> (See Ex. A, Mar.

<sup>1</sup> The petroleum product – referred to herein as "product" or "petroleum product" – that was released from the Pipeline was composed of approximately five parts gasoline and one part diesel.

<sup>2</sup> DHEC created a website regarding the release, which is publicly available and thus subject to judicial notice in this case. See *Phillips v. Pitt Co., Mem'l Hosp.*, 572 F.3d 176, 180 (4th Cir. 2009) ("In reviewing a Rule 12(b)(6) dismissal, [a court] may properly take judicial notice of matters of public record."). The website is available at <http://cdhec.gov/Home/Environment/Poluition/CleanUpPrograms/OngoingProjects/updates/PlantationPipeline> (last visited Feb. 16, 2017). This website shall hereinafter be referred to and cited as "DHEC Website."

<sup>3</sup> The Lewises filed a separate lawsuit against Defendants, and others, on November 5, 2015, in the Anderson County South Carolina Court of Common Pleas, seeking damages and injunctive relief related to the release of product from the Pipeline. Defendants subsequently removed that case to this Court on December 1, 2015, where it is currently pending. See *Lewis, et al. v. Kinder Morgan Energy Partners, L.P., et al.*, No. 8:15-CV-04792-HMH

## II. RULE 12(B)(6) MOTION.

To survive a Rule 12(b)(6) motion to dismiss, "a complaint must contain sufficient factual matter, accepted as true, to 'state a claim to relief that is plausible on its face.'" *Aschcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (quoting *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007)). In determining whether Plaintiffs' Complaint states a claim upon which relief can be granted, the Court should accept all of Plaintiffs' *factual* allegations as true. *Id.* at 678. Conclusory allegations, however, are "not entitled to be assumed true." *Id.* at 681. Nor should the Court "accept as true allegations that contradict matters properly subject to judicial notice or by exhibit." *Veney v. Myche*, 293 F.3d 726, 730 (4th Cir. 2002) (internal quotation marks omitted). Additionally, the Court should dismiss a claim "when, on the basis of a dispositive issue of law, no construction of the factual allegations will support the cause of action." *Marshall Cnty. Bd. of Educ. v. Marshall Cnty. Gas Dist.*, 992 F.2d 1171, 1174 (11th Cir. 1993).

### ARGUMENT

Plaintiffs' claims are founded on a single, accidental release of gasoline from the Pipeline discovered in December 2014. Their claims for violations of the CWA are facially deficient. They have both failed to establish that this Court has subject matter jurisdiction over their claims, and have failed to state a claim for relief under the CWA.

To establish a violation of the CWA, Plaintiffs must allege: (1) the discharge (*i.e.*, addition), (2) of a pollutant, (3) into navigable waters, (4) from a point source, (5) without a permit. *Assateague Coastkeeper v. Alan and Kristin Hudson Farm*, 727 F. Supp. 2d 433, 444 (D. Md. 2010) (quoting *Committee to Save Mokolunne River v. E. Bay Mun. Util. Dist.*, 13 F.3d 305, 308 (9th Cir. 1993)). Plaintiffs have failed to adequately allege several of these basic requirements. As set forth herein, Plaintiffs' Complaint should be dismissed in its entirety for four reasons. First, the CWA does not afford jurisdiction for Plaintiffs' claims because they are

based on a release that is neither ongoing nor reasonably likely to occur again. Second, despite conclusory claims of an "ongoing discharge," Plaintiffs have no cognizable claim because any such seepage is not "from a point source." Third, Plaintiffs have failed to allege the occurrence of any actionable discharge into navigable water. Finally, the Court may exercise its discretion to abstain from this case.

### I. THIS COURT LACKS SUBJECT MATTER JURISDICTION OVER PLAINTIFFS' CLAIMS BECAUSE THEY ARE BASED ON A RELEASE THAT IS NEITHER ONGOING NOR REASONABLY LIKELY TO OCCUR AGAIN.

Defendants readily admit that a pollutant (*i.e.*, petroleum product) was released onto the Lewis Property in November 2014, when the permanent sleeve repair on the Pipeline failed. That release, however, cannot serve as a basis for Plaintiffs' claims in this case because there is no ongoing discharge from a point source. Nor is there any reasonable likelihood that such a discharge will occur in this area in the future. Because of this fact, there is no CWA subject matter jurisdiction for Plaintiffs' claims.

Though the CWA authorizes citizen suits for injunctive relief and/or civil penalties, it also prohibits any such action that is based on allegations of a wholly past violation. Indeed, the Supreme Court has held that a citizen suit can only be based on "a state of either continuous or intermittent violation – that is, a reasonable likelihood that a *past* polluter will continue to pollute in the future." *Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., Inc.*, 484 U.S. 49, 57 (1987) (emphasis added). As set forth herein, Plaintiffs have not alleged any ongoing violation, as necessary to establish subject matter jurisdiction over this case.

In *Gwaltney*, the plaintiffs filed a citizen suit against the defendant for repeatedly discharging pollutants that exceeded the effluent limitations set forth in its NPDES permit. *Id.* at 52. Those violations, however, were not ongoing at the time that the plaintiffs filed suit. *See id.* at 53. Significantly, the defendant had already installed new equipment to control and prevent

*section 1365's requirement that the defendant be alleged to be "in violation" of an effluent standard, limitation or order.*

*Id.* at 394-95 (emphasis added). This case is indistinguishable from *Hanker* and this Court should reach the same decision that the Fifth Circuit Court of Appeals rendered – that Plaintiffs' Complaint must be dismissed for want of subject matter jurisdiction.

Plaintiffs – cognizant of this deficiency in their Complaint – cite to three cases to claim that the continuing effects of Defendants' wholly past release constitute "continuing discharges." [See Doc No 1, ¶ 61.] These three cases, however, are all distinguishable.

In *Am. Canoe Ass'n v. Murphy Farms*, the plaintiffs filed suit against two farms for spilling swine wastewater into nearby rivers without a NPDES permit. 412 F.3d 536, 537 (4th Cir. 2005). In that case, the court had subject matter jurisdiction because the defendants had exhibited a pattern of repeated violations. Indeed, the defendants discharged wastewater into the river twice before the plaintiffs filed their complaint and three times after their complaint was filed. *Id.* at 538. Rather, the defendants asked the court to graft an exemption on polluters who are acting in good faith, which it refused to do. *Id.* at 539. However, Plaintiffs' reliance goes too far. *Am. Canoe Ass'n* in no way stands for the proposition that a one-time past release is actionable under the CWA solely because of its continuing effects.

The other two cases on which Plaintiffs rely – *Ohio Valley Envtl. Coal, Inc. v. Hershaw Partners, LLC*, 984 F. Supp. 2d 589 (S.D.W. Va. 2013), and *N.C. Wildlife Fed'n v. Woodbury*, No. 87-584-CIV-5, 1989 106517 (E.D.N.C. Apr. 25, 1989) – are similarly distinguishable for several reasons. First, they are both dredge and fill cases. In *Ohio Valley Envtl. Coal*, the defendant engaged in coal mining and created a valley fill from which selenium was consistently leaking into a nearby river. *Ohio Valley Envtl. Coal*, 984 F. Supp. 2d at 592. Similarly, in *Woodbury*, the defendants, who were engaged in mining peat, constructed several ditches and

canals, which involved disposition of dredge and fill materials on their property. *Woodbury*, 1989 WL 106517, at \*1. More significantly, the CWA violation in each case was not the act of dredging and filling, but the act of purposefully retaining pollutants on the defendants' property without taking any remedial measures. As the *Woodbury* court stated "the characterization of the presence of dredge and fill material on the [defendants' property] as a continuing violation recognizes that the violation is still capable of correction, since plaintiffs seek injunctive relief ordering that the material be removed[.]" *Woodbury*, 1989 WL 106517, at \*3.

Unlike in *Ohio Valley Envtl. Coal* and *Woodbury*, Defendants have not intentionally retained reservoirs of pollutants without taking any remedial measures. Rather, this case involves a one-time discharge. Defendants have fully repaired the cause of the discharge (*i.e.*, the Pipeline). And Defendants continue to engage in remedial efforts to eliminate ongoing effects from that past discharge. See DHEC Website. The facts of this case are in no way analogous to those in *Am. Canoe Ass'n*, *Ohio Valley Envtl. Coal*, and *Woodbury*. They are, however, on all fours with the facts in *Hanker*.

Defendants anticipate that – based on the allegations set forth in the Complaint – Plaintiffs will argue that this Court has subject matter jurisdiction over their claims because leaks have occurred on other portions of Defendants' pipelines that run through other states. [See Doc No 1, ¶¶ 28-33.] These allegations do not, however, in any way suggest that there is a "reasonable likelihood" the existence of any "continuous or intermittent violation" of the CWA in connection with that portion of the Pipeline at issue in this case. See *Gwaltney*, 484 U.S. at 57. Moreover, Plaintiffs lack standing to pursue claims against Defendants for the risk of future CWA violations on other portions of their national pipeline network because they have not alleged anything to suggest that they have an interest in using any area in which there is a "reasonable

because that section prohibits only "discharges of any pollutant," which in turn are defined in section 1362(12) to be "any addition of any pollutant to navigable waters, from any point source." A "point source" is a "discernible, confined and discrete conveyance, including but not limited to any pipe...." No continuing addition to the ground water from a point source is alleged, nor could it be alleged under the facts set forth in this complaint. Rather, the complaint alleges, necessarily, only that there are continuing *effects* from the past discharge, and such an allegation is insufficient for purposes of section 1365.

*Id.* at 397 (internal citations omitted, emphasis original). The same is true here.

The Pipeline is no longer releasing product. Rather, Plaintiffs allege only that the previously released product "is making its way into groundwater supplies, wetlands, and surface waters in Anderson County and the Savannah River watershed." [Doc No 1, ¶ 10.] Yet, even when construing Plaintiffs' Complaint in this way – as alleging a continuing seepage of the now-dispersed leaked product into the groundwater and the surface water – those allegations fail to state an actionable CWA claim because they do not involve a discharge from a *point source*. At most, Plaintiffs' Complaint alleges that there are continuing *effects* from the past discharge, and – as the Fifth Circuit Court of Appeals found in *Hancker* – "such an allegation is insufficient for purposes of § 1365." *Id.* at 397. In other words, "migration of residual contamination from previous releases does not constitute an ongoing discharge," and holding otherwise "would undermine the CWA's limitations as set forth in the statute's definition of point source and the Supreme Court's holding in *Gwaltney*." *Wilson v. Amoco Corp.*, 33 F. Supp. 2d 969, 975 (D. Wyo. 1998).

Plaintiffs wrongly suggest that the Spill Area and contaminated groundwater qualify as point sources because a point source ""need only convey the pollutant to "navigable waters."" [Doc No 1, ¶ 52 (quoting *S. Fla. Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541, U.S. 95, 105 (2004)).] The CWA, however, is clear that a point source must also be a "discernible, confined, and discrete conveyance," (*i.e.*, a "pipe, ditch, channel, tunnel, conduit, well, [etc.]).

33 U.S.C. § 1362(14). Moreover, the cases on which Plaintiffs rely for this proposition have no bearing on the issues at hand because they deal with the question of whether a party discharging pollutants through a "discrete conveyance" can be held liable under the CWA even if it was not the original source of the pollutant. *See, e.g., S. Fla. Water Mgmt. Dist.*, 541 U.S. at 105 (holding that a state water management agency's pumping of already polluted water into a navigable water is actionable under the CWA); *W. Va. Highlands Conservancy, Inc. v. Huffman*, 625 F.3d 159, 168 (4th Cir. 2010) (finding that the West Virginia Department of Environmental Protection needed a NPDES permit for discharges from abandoned coal mining sites it had reclaimed, noting that WVDEP acknowledged that the outfalls in question had the characteristics of a point source, and that the CWA does not include a "causation requirement"); *United States v. Earth Scis., Inc.*, 599 F.2d 368, 374 (10th Cir. 1979) (holding that unintentional overflows from a mining operation's machinery were regulated by the CWA); *O'Leary v. Moyer's Landfill, Inc.*, 523 F. Supp. 642, 655 (E.D. Pa. 1981) (finding that leachate from a landfill was regulated by the CWA even though the landfill owner did not intend for the leachate to escape). Contrary to Plaintiffs' allegations, the fact that the Spill Area and the contaminated groundwater may convey product to navigable water does not render them point sources because they are not "discernible, confined, and discrete conveyance." 33 U.S.C. § 1362(14).

Simply stated, Plaintiffs cannot transform what is, in essence, a wholly past discharge into an ongoing violation of the CWA by characterizing the soil and the groundwater as a point source when clear precedent states that they are non-point sources and thus not governed by the CWA.



groundwater—even if potentially connected to navigable waters—do not give rise to a claim under the CWA.<sup>7</sup>

In *Rice v. Harken Exploration Co.*, the defendant was engaged in the exploration, pumping, processing, transporting, and drilling of oil. 250 F.3d 264, 265 (5th Cir. 2001). The plaintiffs filed suit for violations of the Oil Pollution Act of 1990,<sup>8</sup> alleging that defendant had discharged, and continued to discharge, pollutants into several nearby creeks and other “independent ground and surface waters.” *Id.* The Court of Appeals noted that groundwater is not “within the class of waters protected by the CWA.” *Id.* at 269. It also addressed the plaintiffs’ argument that “discharges have seeped through the ground into groundwater which has, in turn, contaminated several bodies of surface water.” *Id.* at 270. The Court unequivocally held that such discharges are not actionable:

So far as here relevant, the “discharges” for which the OPA imposes liability are those “into or upon the navigable waters.” As noted, “navigable waters” do not include groundwater. It would be an unwarranted expansion of the OPA to conclude that a discharge onto dry land, some of which eventually reaches groundwater and some of the latter of which still later may reach navigable waters, all by gradual, natural seepage, is the equivalent of a “discharge” “into or upon the navigable waters.”

*Id.* at 271. The same is true under the CWA, and the same is true here.

The Court of Appeals in *Vill. of Oconomowoc Lake v. Dayton Hudson Corp.*, 24 F.3d 962 (7th Cir. 1994) similarly found that discharges into groundwater was not regulated by the CWA, even if that groundwater was hydrologically connected with surface waters. In that case, a

<sup>7</sup> A third court of appeals also addressed this issue and held that the CWA does not apply to groundwater. *United States v. Johnson*, 347 F.3d 157, 161 n.4 (1st Cir. 2006). That decision, however, was subsequently withdrawn, vacated, and remanded on other grounds. See *United States v. Johnson*, 467 F.3d 56 (1st Cir. 2006).

<sup>8</sup> The “discharge” and “navigable water” analysis under the OPA is identical to that used in CWA cases. See *Rice*, 250 F.3d at 267 (“The legislative history of the OPA and the textual definitions of ‘navigable waters’ in the OPA and the CWA strongly indicate that Congress generally intended the term ‘navigable waters’ to have the same meaning in both the OPA and the CWA. Accordingly, the existing case law interpreting the CWA is a significant aid in our present task of interpreting the OPA.”).

village sought to stop the construction of a warehouse that planned to collect rainwater runoff in a six-acre artificial pond that would retain petroleum products and other pollutants while “exfiltrating” the water to the ground below. *Id.* at 964. The Court of Appeals held that, “[n]either the Clean Water Act nor the EPA’s definition asserts authority over ground waters, just because these may be hydrologically connected with surface waters.” *Id.* at 965.

Many district courts – including several in this circuit – have also held that groundwater is not regulated by the CWA, even if it is hydrologically connected to surface waters. See, e.g., *Chevron U.S.A. Inc. v. Apex Oil Co., Inc.*, 113 F. Supp. 3d 807, 816-17 (D. Md. 2015) (“Congress did not intend for groundwater to fall within the purview of ‘navigable water,’ even if it is hydrologically connected to a body of ‘navigable water.’”); *Cape Fear River Watch, Inc.*, 25 F. Supp. 3d at 810 (“Congress did not intend for the CWA to extend federal regulatory authority over groundwater, regardless of whether that groundwater is eventually . . . hydrologically connected to navigable surface waters”); *Tri-Ready Co. v. Ursinus Coll.*, No. 11-5885, 2013 WL 6164092, at \*9 (E.D. Pa. Nov. 21, 2013) (stating the same); *Unatilla Waterquility Prot. Ass’n v. Smith Frozen Foods, Inc.*, 962 F. Supp. 1312, 1320 (D. Ore. 1997) (stating the same). These decisions have been based on a thorough analysis of the language and legislative history of the CWA, many other courts’ examinations of the issue, and the impact of the Supreme Court’s ruling in *Rapanos v. United States*, 547 U.S. 715 (2006). See, e.g., *Cape Fear River Watch, Inc.*, 25 F. Supp. 3d at 809-10; *Tri-Ready Co.*, 2013 WL 6164092, at \*9 n.7.

In their Complaint, Plaintiffs cite to several courts that have found that discharges from a point source to groundwater that is hydrologically connected to surface waters are actionable under the CWA. See, e.g., *Sierra Club v. Va. Elec. & Power Co.*, 145 F. Supp. 3d 601, 607-08 (E.D. Va. 2015); *Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC*, 141 F. Supp. 3d 428,

Congress defined a "discharge of a pollutant . . . to include only discharges into navigable waters . . . Discharges into ground waters are not included"). In short, the plain language and legislative history of the CWA, the EPA's own regulations, and the greater weight of federal precedent from across the country make it clear that the CWA does not regulate discharges to groundwater, even if that groundwater is hydrologically connected to surface waters, or otherwise serves as a conduit for transporting pollutants. Because Plaintiffs have only alleged a discharge to groundwater and impacts to surface water from the groundwater, their claims should be dismissed as lacking subject matter jurisdiction.

**IV. PLAINTIFFS' REQUESTS FOR INJUNCTIVE RELIEF ARE BEING FULLY ADDRESSED BY DHEC'S REGULATORY FRAMEWORK AND SHOULD BE DISMISSED PURSUANT TO ABSTENTION DOCTRINES.**

This Court may also dismiss this case for lack of subject matter jurisdiction because abstention is warranted. The authority for the Court to abstain from exercising its jurisdiction extends to all cases in which the Court has discretion to grant or deny relief. *Quackenbush v. Allstate Ins. Co.*, 517 U.S. 706, 718, 116 S. Ct. 1712, 135 L. Ed. 2d 1 (1996).<sup>12</sup> This Court may abstain and dismiss Plaintiffs' claims based on two independent abstention doctrines: (1) the primary jurisdiction doctrine, because remediation of the release involves highly technical and complex qualitative decision-making under DHEC's regulations;<sup>13</sup> and (2) the *Burford* doctrine, because Plaintiffs' request for federal review is an impermissible preemptive collateral attack on DHEC's enforcement of remediation of the release.<sup>14</sup>

<sup>12</sup> Defendants reserve and in no way waive all prior arguments.

<sup>13</sup> See *U.S. v. Western Pacific R.R. Co.*, 352 U.S. 59, 63, 77 S.Ct. 161, 1 L.Ed.2d 126, 135 Ct. Cl. 997 (1956); *Piney Run Pres. Ass'n v. Civ. Comm'n*, 268 F.3d 255, 262 n.7 (4<sup>th</sup> Cir. 2001).

<sup>14</sup> See *Burford v. Sun Oil Co.*, 319 U.S. 315, 327, 63 S. Ct. 1098, 87 L. Ed. 1424 (1943); *Sugarloaf Citizens Ass'n v. Montgomery County*, 33 F.3d 52, 1994 WL 447442, at \*6 (4<sup>th</sup> Cir. 1994) (unpublished opinion) (plaintiff's RCRA claims were a collateral attack on permitting decision by state environmental agency; abstention under *Burford* warranted to avoid interference in complex statutory scheme).

Abstention is appropriate under the primary jurisdiction doctrine "whenever enforcement of [a] claim requires the resolution of issues which, under a regulatory scheme, have been placed within the special competence of an administrative body; in such a case the judicial process is suspended pending referral<sup>15</sup> of such issues to the administrative body for its views." *U.S. v. W. Pacific R. Co.*, 352 U.S. at 63-64; see also *White v. Bloomberg*, 501 F.2d 1379, 1384 n.7 (4<sup>th</sup> Cir. 1974). "The aim of the doctrine...is to ensure that courts and agencies with concurrent jurisdiction over a matter do not work at cross-purposes." *Fulton Cogeneration Assoc. v. Niagara Mohawk Power Corp.*, 84 F.3d 91, 97 (2d Cir. 1996).

Although the primary jurisdiction doctrine provides a sound basis for dismissal of Plaintiffs' claims, the *Burford* abstention doctrine is also appropriate.<sup>16</sup> *Burford* allows a federal court to refrain from interfering with complex state regulatory schemes "[w]here timely and adequate state-court review is available." *New Orleans Pub. Serv., Inc. v. Council of New Orleans*, 491 U.S. 350, 361, 109 S. Ct. 2506, 105 L. Ed. 2d 298 (1989) ("*NOPSY*"), and where a case [1] presents difficult questions of state law bearing on policy problems of substantial public import whose importance transcends the result then at bar, or [2] if its adjudication in a federal forum would be disruptive of state efforts to establish a coherent policy with respect to a matter of substantial public concern. *Quackenbush*, 517 U.S. at 726-27 (quoting *NOPSY*, 491 U.S. at 361). There is no "formulaic test" for applying the *Burford* doctrine; despite the doctrine's "many different forks and prongs, [its] central idea has always been one of simple comity." *MLC*

<sup>15</sup> "Referral" to an agency is a term of art under this doctrine; not a formal transfer. In *re Melby/Tertiary Burford* (*MTBE*), 2007 U.S. Dist. Lexis 18398 (S.D. N.Y. March 7, 2007). The court may dismiss the case without prejudice or stay the case. *Reiter v. Cooper*, 507 U.S. 258, 268-69, 122 L.Ed. 2d 604, 113 S. Ct. 1213 (1993).]

<sup>16</sup> *Burford v. Sun Oil Co.*, 319 U.S. 315, 63 S.Ct. 1098, 87 L.Ed. 1424 (1943).

any information assembled in compliance with this subpart." S.C. Code Ann. Regs. 61-92.280.66 (2008). Evaluation of the plan to fully remediate the petroleum release, by regulation, requires expertise and discretionary decisions by DHEC in accordance with its environmental policies.

DHEC expects that the injunctive relief which Plaintiffs are requesting – full remediation of the release – will likely span over 10 years. (See Ex. D, Jan. 31, 2017 SCDHEC Information Sheet and Agenda.) Abstention is appropriate here because Plaintiffs' demands for injunctive relief would require this Court to immerse itself into the ongoing regulatory process and make duplicative and possibly contradictory decisions regarding how the remediation plan for the release should be designed and implemented.<sup>19</sup> These are the precise determinations that DHEC itself is completing now using quantitative and qualitative information regarding which remedial technologies are most appropriate to fully remediate the petroleum release and adequately protect the environment.

***B. DHEC is Immersed in Overseeing and Directing Remediation of the Release and Plaintiffs are Actively Participating in this Regulatory Process.***

DHEC has required Defendants to investigate the extent of the petroleum release and implement remedial actions to address the release. As requested by DHEC, PPL submitted an Interim Corrective Action Plan on March 5, 2015. (Ex. A.) PPL submitted the DHEC-required Comprehensive Site Assessment (CSA) Report on July 15, 2016, a Revised CSA on September 26, 2016. (Ex. B.) As of July 2016, PPL had installed 98 temporary monitoring wells, 20 product recovery sumps, 15 recovery wells, two product recovery trenches, and 17 booms.

<sup>19</sup> See *Montgomery Environmental Coalition Citizens Coordinating Committee on Friendship Heights v. Washington Suburban Sanitary Com.*, 607 F.2d 378, 381-383 (D.C. Cir. 1979) (where issue was appropriate level and quality of discharge for permit, it was prudent to yield primary jurisdiction to the expert agency); *Friends of Santa Fe City v. LAC Minerals, Inc.*, 892 F. Supp. 1333, 1349-50 (D.N.M. 1995) (court referred to the agency the issue of whether acid mine drainage is a danger to health because the resolution would involve second guessing the Army Corps of Engineers, which is better suited to make the determination).

Approximately 2,800 tons of contaminated soil has been removed.<sup>20</sup> As of the end of November 2016, 209,860 gallons of petroleum product have been recovered.<sup>21</sup> Recovery of product is ongoing at the site and surface water samples are collected and analyzed monthly at multiple locations along Browns Creek.<sup>22</sup>

PPL submitted the required Corrective Action Plan (CAP) to DHEC on September 1, 2016. (Ex. E, September 1, 2016 Corrective Action Plan (CAP).<sup>23</sup> The purpose of the CAP is to describe the proposed comprehensive plan to remediate the soil, groundwater, and surface water impacted by the release. The CAP was published by DHEC for public comments between October 21, 2016 and December 6, 2016. Plaintiffs actively participated in the public comment period.<sup>24</sup> On November 28, 2016, the Plaintiffs, through their counsel, submitted detailed requests and concerns regarding the CAP to DHEC. (See Ex. C).

On January 31, 2017, DHEC held a community informational meeting in which the Director of the UST Management Division and Assistant Bureau Chief of the Bureau of Land and Waste Management (which includes the UST Management Division) were both present for an update and questions and answers. (See Ex. D). Representatives from the Plaintiffs and their counsel attended this meeting. The detailed information sheet DHEC provided at this meeting again sets forth DHEC's command over the investigation and remediation of the petroleum release:

<sup>20</sup> DHEC Website *supra* note 2.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> Figures and Appendices omitted due to file size limits.

<sup>24</sup> Plaintiffs have established several webpages which detail their involvement in the regulatory process and where they encourage public involvement in the regulatory process. See <https://upstakeforever.org/kinder-morgan-betion-pipeline-spill/>; <https://upstakeforever.org/kinder-morgan-betion-pipeline-spill-public-comments/>; and <http://www.saranahriverkeeper.org/kinder-morgan-betion-spill.html> (all last visited February 16, 2016).

The DHEC regulatory process requires a public participation and public involvement process, and DHEC has allowed for public comment with respect to Defendants' proposed plan to remediate the petroleum release. Plaintiffs are actively engaged in that process in pursuit of the same remedies they seek from this Court. Additionally, Plaintiffs have a timely and adequate review system in the South Carolina courts if they are not satisfied with the CAP Addendum and the final remedial plan that DHEC ultimately approves. First, they may appeal DHEC's approval of the remedial plan to the South Carolina Administrative Law Court (ALC). See S.C. Code Ann. §44-1-60 (2010). Then, if they are not satisfied with the ALC's decision, they may petition the South Carolina Court of Appeals to review that decision. S.C. Code §1-23-610 (2008). For these reasons, this Court may and should abstain from this matter under the primary jurisdiction doctrine.

**C. Plaintiffs' CAP Claims Are an Impermissible Collateral Attack Against DHEC's Decision-Making and Should be Dismissed under *Burford*.**

Moreover, Plaintiffs' Complaint is a preemptory collateral challenge to DHEC's decisions on the CAP.<sup>26</sup> Plaintiffs' invocation of federal review will disrupt the complex regulatory process DHEC has in place, and is implementing, to carry out the environmental policies and laws of South Carolina. Plaintiffs are pitting this Court against DHEC in real time while DHEC is overseeing the remediation process, asking the Court to "ensure" Defendants' compliance with Plaintiffs' demands which may not match up with DHEC's regulatory decisions. This Court should dismiss Plaintiffs' Complaint under the *Burford* doctrine in order to allow DHEC to continue with its oversight of remediation of the release without the disruption of Plaintiffs' parallel demands in a federal forum. See *Palumbo v. Waste Technologies Indus.*,

<sup>26</sup> See *Singerloaf Citizen Ass'n v. Montgomery County*, 1994 U.S. App. Lexis 30215 (4<sup>th</sup> Cir. Md. 1994) (affirming dismissal of citizen suit claims where claims involved complex permitting of a waste facility and federal review would disrupt complex statutory scheme and frustrate coherent environmental policy).

989 F.2d 136 (4<sup>th</sup> Cir. 1993) (*Burford* doctrine applied where plaintiff's citizen suit is a collateral attack on permitting decision and plaintiffs should have taken up challenges with the appropriate agencies or raised them on appeal).<sup>27</sup>

**CONCLUSION**

For the reasons set forth herein, Defendants respectfully request that this Court dismiss Plaintiffs' claims, in their entirety, for lack of subject matter jurisdiction and for failure to state a claim or, in the alternative, abstain from hearing this case.

Dated: February 17, 2017

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<sup>27</sup> But see *Ohio Valley Envtl. Coalition, Inc. v. Apogee Coal Co., LLC*, 531 F. Supp. 2d 747, 759 (S.D. W. Va. 2008) (holding that the *Burford* doctrine is inapplicable when a plaintiff's claims cannot be characterized as a collateral attack on an agency decision).

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March 1, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, SC 29201

Subject: Corrective Action Plan Addendum  
Plantation Pipe Line Company  
Lewis Drive Remediation Site, Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared the enclosed Corrective Action Plan (CAP) Addendum for the Lewis Drive site located in Belton, Anderson County, South Carolina. The original CAP was submitted on September 1, 2016. After the CAP was submitted, it underwent a 47-day public comment period. The South Carolina Department of Health and Environmental Control issued a letter dated January 27, 2017, (with an errata letter dated January 31, 2017) summarizing the public comments and requesting a CAP Addendum be submitted within 30 days.

In addition to revising the surface water and groundwater monitoring plan, the enclosed CAP Addendum also provides supplemental rationale for the selection of this remedy, and documents the plan to mitigate two localized groundwater seeps.

If you have any further questions or concerns, please contact me at (919) 760-1777 or Mr. Jerry Aycock with Plantation at (770) 751-4165.

Regards,  
CH2M HILL Engineers, Inc.

William M. Waldron, P.E.  
Senior Project Manager

Enclosure:

*Corrective Action Plan Addendum, Lewis Drive Remediation Site, Belton, South Carolina, Site ID Number 18693 ("Kinder Morgan Belton Pipeline Release"), March 1, 2017*

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Ms. Bobbi Coleman  
Page 2  
March 1, 2017

c: (via e-mail)

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File

ADDENDUM

Corrective Action Plan Addendum  
Lewis Drive Remediation Site  
Belton, South Carolina  
Site ID Number 18693  
("Kinder Morgan Belton Pipeline Release")

*Prepared for*

Plantation Pipe Line Company

March 1, 2017



CH2M HILL Engineers, Inc.  
6600 Peachtree Dunwoody Road  
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Atlanta, Georgia 30328



**Corrective Action Plan Addendum  
Lewis Drive Remediation Site  
Belton, South Carolina  
Site ID Number 18693  
("Kinder Morgan Belton Pipeline Release")**

PREPARED FOR



PLANTATION PIPE LINE COMPANY

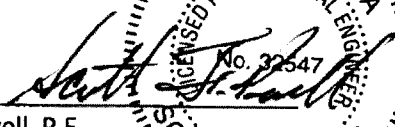
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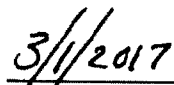
**ch2m**

ATLANTA, GEORGIA

March 1, 2017

I affirm that this plan addendum was prepared under my direct supervision.

  
\_\_\_\_\_  
Scott Powell, P.E.  
South Carolina Registered Professional Engineer #32547

  
\_\_\_\_\_  
Date

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# Acronyms and Abbreviations

1,2-DCA	1,2-dichloroethane
BTEX	benzene, toluene, ethylbenzene, and xylenes
CAP	corrective action plan
CH2M	CH2M HILL Engineers, Inc. (a CH2M HILL company)
DO	dissolved oxygen
ISCO	in situ chemical oxidation
ISTT	in situ thermal treatment
LEL	lower explosive limit
LNAPL	light non-aqueous phase liquid
MNA	monitored natural attenuation
MPE	multi-phase extraction
MTBE	methyl tertiary butyl ether
NSZD	natural source zone depletion
PAB	permeable adsorptive barrier
Plantation	Plantation Pipe Line Company
PRB	permeable reactive barrier
QAPP	Quality Assurance Project Plan
RCM	reactive core mat
SCDHEC	South Carolina Department of Health and Environmental Control
SVE	soil vapor extraction

# Introduction

CH2M HILL Engineers, Inc. (a CH2M HILL company, herein referred to as CH2M) has prepared this Corrective Action Plan (CAP) Addendum on behalf of Plantation Pipe Line Company (Plantation) for the remediation of a pipeline release discovered December 8, 2014, at Lewis Drive in Belton, Anderson County, South Carolina. This site has been designated by the South Carolina Department of Health and Environmental Control (SCDHEC) as Site Number 18693 ("Kinder Morgan Belton Pipeline Release"). The original CAP was submitted on September 1, 2016 (CH2M, 2016a) in accordance with correspondence from SCDHEC stamped January 26, 2015, March 21, 2016, June 13, 2016, and June 29, 2016. After the CAP was submitted, it underwent a 47-day public review period. SCDHEC issued a letter dated January 27, 2017, (with an errata letter dated January 31, 2017) presenting comments on the CAP and requesting a CAP Addendum be submitted within 30 days. Based on subsequent discussions with SCDHEC after submittal of the CAP and during the public comment period, including a meeting held in Columbia, South Carolina on November 4, 2016, this CAP Addendum was prepared to revise the groundwater and surface water monitoring plan, and supersedes those pertinent elements of the original CAP submittal. There is also a response to comments letter, prepared by CH2M and submitted under separate cover, that responds to the SCDHEC comments provided on the CAP.

In addition to revising the surface water and groundwater monitoring plan, this CAP Addendum also provides supplemental rationale for the selection of the proposed remedy, including a detailed case history of success with the technology in remediating light non-aqueous phase liquid (LNAPL) in South and North Carolina. Finally, this CAP Addendum also documents the plan to mitigate impacts from two localized groundwater seeps that have been observed in the Brown's Creek area of the site.

This CAP Addendum is organized as follows:

- **Section 1, Introduction** – Provides an overview of the purpose and organization of this CAP Addendum.
- **Section 2, Remedial Technology Selection** – Provides justification for the selection of air/biosparging as the remedial technology, including several case histories of success with this technology at similar sites in the region.
- **Section 3, Revised Groundwater Monitoring Program** – Revises the original proposed monitoring program that will be implemented to monitor remedial performance.
- **Section 4, Focused Seep Abatement** – Documents the plan to address two groundwater seeps that have been observed in the Brown's Creek area of the site.
- **Section 5, References** – Provides a list of references cited in this report.
- **Table and Figures** – Supporting tables and figures are provided in sections following the text.
- **Appendix A, Remedial Successes in Sparging LNAPL** – Presents case studies and specific examples of sparging performance at LNAPL sites.
- **Appendix B, Startup Plan for Surface Water Protection Measures - Revision 2** – Includes a copy of the *Startup Plan for Surface Water Protection Measures – Revision 2*, submitted to SCDHEC on February 23, 2017 (CH2M, 2017b).
- **Appendix C, Surface Water Protection Plan Addendum and Approval Letter** – Provides a copy of the *Surface Water Protection Plan Addendum* (CH2M, 2017a), submitted to SCDHEC on January 20, 2017, as well as the SCDHEC approval letter dated February 10, 2017.

# Remedial Technology Selection

This section summarizes the evaluation and selection of remedial technologies for the Lewis Drive Remediation Site in Belton, South Carolina.

## 2.1 Corrective Action Objectives

The corrective action objectives for the site, as presented in the original CAP (CH2M, 2016a), are as follows:

1. Remove product to the maximum extent practicable.
2. Abate surface water impacts to maintain surface water criteria.
3. Reduce concentrations of dissolved hydrocarbons in groundwater to be protective of surface water quality.

These objectives are described in more detail in the CAP. Note that for the purposes of evaluating applicable technologies, “product” is referred to as LNAPL. At Lewis Drive, LNAPL consists primarily of gasoline with a minor amount of diesel.

## 2.2 Technology Screening

The following nine technology alternatives were evaluated using the screening methodology presented in the Interstate Technology & Regulatory Council (ITRC) guidance on *Evaluating LNAPL Remedial Technologies for Achieving Project Goals* (ITRC, 2009):

1. Risk reduction, monitored natural attenuation (MNA), and natural source zone depletion (NSZD)
2. Air/biosparging
3. In situ chemical oxidation (ISCO)
4. In situ thermal treatment (ISTT)
5. Excavation and product removal
6. Physical or hydraulic containment (barrier wall, French drain, slurry wall)
7. Permeable reactive barrier (PRB) or permeable adsorptive barrier (PAB)
8. Soil vapor extraction (SVE)
9. Multi-phase extraction (MPE)

Each technology is described and evaluated for its effectiveness, implementability, and cost in Table 1. Of those evaluated, the following technologies were retained as components of the remedy:

- **Risk reduction, MNA, and NSZD:** These natural processes form a component of any overall remedy, and will be retained as a polishing step after active remediation has sufficiently reduced source zone impacts.
- **Air/biosparging:** Biosparging has been implemented effectively with rapid results at similar sites in the region and is retained as the primary active remedy.
- **Physical or hydraulic containment:** This technology must be paired with an alternative that addresses the source and the dissolved plume. During the emergency phase of the response, Plantation installed a recovery trench along impacts leading to Brown’s Creek. This trench will

continue to be used for vacuum product recovery until the biosparging curtain is established to mitigate impacted groundwater adversely affecting surface water.

- **MPE:** As a stand-alone remedy, MPE has a tendency for longer remediation times than technologies that rely on biological degradation or volatilization. Therefore, a permanent MPE system is rejected. Surfactant enhancements are rejected due to their potential to mobilize product near receptors. However, mobile MPE and vacuum recovery can be implemented as contingency measures in areas of highly recoverable product and/or high risk areas, such as those adjacent to Brown's Creek and Cupboard Creek.

A combination of air/biosparging supplemented with vacuum recovery in extraction wells and the interception trenches will form the basis of the remedy. MNA and NSZD will also be considered later in the remediation process to determine an endpoint to active remediation. The endpoint to active remediation is the point at which natural processes surpass active biosparging in effectively degrading residual LNAPL and dissolved concentrations, and is protective of surface water quality.

## 2.3 Technology Selection

In addition to the hydraulic containment and vacuum recovery already in progress at the site, biosparging was selected as the primary active approach to achieve the remedial objectives for the following reasons:

- Numerous case studies show that sparging effectively reduces product levels and concentrations of petroleum-related hydrocarbons in soil and groundwater. Additionally, Plantation has successfully used sparging in numerous nearly identical geologic settings to remove residual product and reduce hydrocarbon concentrations in soil and groundwater.
- Sparging equipment (air compressors and associated controls) is fairly simple, relatively low maintenance, and reliable. Typically, runtime efficiency for a sparging system exceeds 90 percent.
- Sparging eliminates the need for removal, treatment, storage, or discharge of recovered liquids. Minimal volumes of (treated) condensate from the air compressors will be generated.
- During the initial stages of operation, sparging will be conducted at low flow rates to limit volatilization of hydrocarbons. As biodegradation and mass removal proceeds, flow rates will be gradually increased while monitoring ambient vapor concentrations.

## 2.4 Sparging Performance in Reducing LNAPL

A misconception has been that sparging does not abate LNAPL. There are also concerns that sparging may spread LNAPL by inducing an undesired subsurface gradient. However, industry, CH2M, and Plantation have extensive experience using sparging to reduce LNAPL at a variety of sites and spreading has been shown to be minimal or nonexistent. The following studies include specific examples; detailed reports for these studies are provided in Appendix A:

- *Application of Air Sparging Using Directionally Drilled Wells for Petroleum Hydrocarbon Remediation* (CH2M, 2012). Case study at a fuel farm in Mississippi. During the first year of operation, the air sparge and SVE system removed an estimated 4,500 pounds of JP-8 from the subsurface via biodegradation and volatilization (approximately four times that of skimming) and LNAPL thicknesses in wells decreased from a maximum of 2.5 feet to a maximum of about 0.5 foot. During the second year of operation, LNAPL thicknesses in monitoring wells continued to decrease to less than 0.1 foot (in 23 monitoring wells). Observations of bubbling in monitoring wells screened in the saturated zone indicated a sparge influence zone of approximately 40 feet on both sides of the wells. There was no evidence that LNAPL was displaced. During the third and fourth years of

operation, no measurable free product was detected in any of the monitoring wells. After system shutdown, rebound occurred in one monitoring well outside the zone of influence of the sparge wells, which was addressed using sorbent media (“socks”). Additional rebound did not occur, and no further action was required by the state. As stated in the study, data from field sites suggested spreading is limited or nonexistent.

- *Successful LNAPL Removal Using Air Sparge/Soil Vapour Extraction Technology* (Natusch and Smithard, 2005). According to this study, “Under suitable site conditions and design provisions, accurate LNAPL plume control and associated risk-management can be achieved to enable a high-impact approach towards contaminant mass removal and site remediation... The primary remedial objective, LNAPL source removal, was completed over a very short (9-month) time period in the context of the volume of product recovered (40,000L). At the same time, primary AS/SVE system design limitations, control and management of LNAPL plume migration and containment of generated vapour, were also successfully managed throughout the project.”
- *A Case Study of Aquifer Air Sparging for Remediation of LNAPL* (Palaia et al., 2007). As stated in this study, the weight of evidence collected indicates that LNAPL has not spread, and that the LNAPL is being remediated.
- *Biosparging Using Horizontal Wells at Columbus AFB, MS* (Strong et al., 2008). This study reported that LNAPL thicknesses in monitoring wells decreased from a maximum of 2.5 feet to a maximum of about 0.5 foot after the first year, and less than 0.2 foot after 2 years of operation.
- *The Use of Biosparging to Remove LNAPL at Selma 3* (Lunardini, 2017) and *Advancements in Horizontal Directional Drilling in the Kinder Morgan Remediation Program* (URS, 2014). LNAPL thicknesses were reduced from 4 feet to zero in 12 months of sparging operation without accompanying SVE at the Selma Terminal in Selma, North Carolina. There is no evidence that biosparging spread LNAPL outward. Dissolved hydrocarbons were no longer detected in the source area after 6 years of sparging.
- *Annual Remediation Report for 2015, Peairs Road Site, Zachary, Louisiana* (URS, 2016). Air sparging was conducted from 2007 to 2015. LNAPL thicknesses were reduced from over a foot to zero in 15 months. No LNAPL was detected and no benzene, toluene, ethylbenzene, and xylenes (BTEX) or methyl tertiary butyl ether (MTBE) constituents were detected above their regulatory levels in any monitoring wells in 2015.
- *Monthly Sampling Report – January 2017 Results, Plantation Pipe Line Company Anderson TOR Release, Anderson, South Carolina* (AECOM, 2017). LNAPL thicknesses were reduced from over a foot to 0.02 foot after less than a month of operation.

These studies illustrate that LNAPL reduction can be expected through sparging technology and that spreading is minimal to nonexistent. Therefore, biosparging is a suitable technology to meet the three remedial action objectives at the Lewis Drive site: remove product to the maximum extent practicable, abate surface water impacts, and reduce concentrations of dissolved hydrocarbons in groundwater to be protective of surface water quality.

# Revised Monitoring and Reporting Plan

This section revises the proposed groundwater and surface water monitoring program for the site following construction and startup of the remedial system. This section replaces Section 8 of the original CAP (CH2M, 2016a).

Please note that these proposed monitoring and reporting components are based on an assumed set of conditions that may change after system startup. Monitoring frequencies may need to be increased or decreased based on the response observed in the aquifer. Similarly, monitoring wells may be added or removed from the monitoring network depending on the changes observed in the hydrocarbon plume. Any adjustments will be made in consultation with SCDHEC, and will be documented and reported accordingly.

## 3.1 Groundwater Monitoring

To provide clarity, the groundwater monitoring plan has been subdivided into four zones with unique geologic and hydrogeological characteristics that were described in the CAP:

1. **Brown's Creek Protection Zone** – This zone encompasses the distinct lowland area that is adjacent to Brown's Creek.
2. **Cupboard Creek Protection Zone** – This zone encompasses the distinct lowland area that is adjacent to Cupboard Creek.
3. **Hayfield Zone** – The Hayfield Zone encompasses the upland hayfield north of Lewis Drive.
4. **Shallow Bedrock Zone** – The Shallow Bedrock Zone encompasses the upland area south of Lewis Drive generally between the Brown's Creek and Cupboard Creek Protection Zones.

Figure 1 shows the area of each zone described above. Weekly analytical groundwater monitoring will be performed during the startup period as described in the *Startup Plan for Surface Water Protection Measures – Revision 2*, submitted to SCDHEC on February 23, 2017 (CH2M, 2017b); a copy of the plan is included in Appendix B. Beyond the startup period, groundwater monitoring will be conducted on the schedule presented in Table 2. Table 2 is subdivided into each of the above zones, and larger-scale maps have been developed to highlight key monitoring locations and frequency within each zone (Figures 2 through 5).

For each of the four zones, performance monitoring will be conducted by groundwater sampling in the existing monitoring well network at the site. A baseline monitoring event was performed in December 2016. The data collected during this baseline event will be compared to sampling results collected following system startup to evaluate the effectiveness of sparging. Samples will be collected using no-purge HydraSleeve samplers. However, if there is not sufficient depth of water column in the well for HydraSleeve sampling (16 inches of water column is typically required), the groundwater must be sampled using low-flow purge sampling. The field parameters dissolved oxygen (DO), oxidation-reduction potential, pH, temperature, specific conductance, and turbidity will be measured at all sample locations. The sparging system will not be shut off prior to sampling.

Groundwater samples will be collected in accordance with the Quality Assurance Project Plan (QAPP) Revision 2 (CH2M, 2017c). Samples will be analyzed for key site contaminants as listed in Table 2: BTEX, naphthalene, MTBE, and 1,2-dichloroethane (1,2-DCA) by EPA Method 8260B (ethylene dibromide is not proposed in this sampling list because it has not been detected at the site in previous sampling events [CH2M, 2015, 2016b]).



### 3.1.1 Brown's Creek Protection Zone

Performance monitoring for contaminant reduction within the Brown's Creek Protection Zone will be conducted as follows:

- Weekly sampling will be conducted during startup activities as described in the Startup Plan (CH2M, 2017b; Appendix B).
- As a precautionary measure, during Year 1, monthly sampling will be performed in the 6 wells listed in Table 2 and shown on Figure 2. These wells are positioned around the perimeter of the hydrocarbon plume and directly upgradient and downgradient of the sparging curtain. These wells will be sampled at this high frequency to evaluate potential outward migration of the plume and contaminant reduction across the sparging curtain.
- During Year 1, quarterly sampling will be performed in the 19 wells listed in Table 2 and shown on Figure 2 (this is inclusive of the 6 wells mentioned above).
- During Year 2 and thereafter, the same 19 wells will be sampled annually. A 14-well subset will also be sampled semiannually (for BTEX only by EPA Method 8260B).

### 3.1.2 Cupboard Creek Protection Zone

Performance monitoring for contaminant reduction within the Cupboard Creek Protection Zone will be conducted as follows:

- Weekly sampling will be conducted during startup activities as described in the Startup Plan (CH2M, 2017b; Appendix B).
- As a precautionary measure, during Year 1, monthly sampling will be performed in the 2 wells listed in Table 2 and shown on Figure 2. These wells are positioned around the perimeter of the hydrocarbon plume and directly upgradient and downgradient of the sparging curtain. These wells will be sampled at this high frequency to evaluate potential outward migration of the plume and contaminant reduction across the sparging curtain.
- During Year 1, quarterly sampling will be performed in the 7 wells listed in Table 2 and shown on Figure 2 (this is inclusive of the 2 wells mentioned above).
- During Year 2 and thereafter, the same 7 wells will be sampled annually. A 6-well subset will also be sampled semiannually (for BTEX only by EPA Method 8260B).

### 3.1.3 Hayfield Zone

Performance monitoring for contaminant reduction within the Hayfield Zone will be conducted as follows:

- As a precautionary measure, during Year 1, monthly sampling will be performed in the 5 wells listed in Table 2 and shown on Figure 2. These wells are positioned around the perimeter of the hydrocarbon plume and directly upgradient and downgradient of the sparging curtain. These wells will be sampled at this high frequency to evaluate potential outward migration of the plume and contaminant reduction across the sparging curtain.
- During Year 1, quarterly sampling will be performed in the 26 wells listed in Table 2 and shown on Figure 2 (this is inclusive of the 5 wells mentioned above).
- During Year 2 and thereafter, the same 26 wells will be sampled annually. A 19-well subset will also be sampled semiannually (for BTEX only by EPA Method 8260B).

### 3.1.4 Shallow Bedrock Zone

Performance monitoring for contaminant reduction within the Shallow Bedrock Zone will be conducted as follows:

- As a precautionary measure, during Year 1, monthly sampling will be performed in MW-22 to evaluate potential outward migration of the plume and contaminant reduction across the sparging curtain.
- During Year 1, quarterly sampling will be performed in the 8 wells listed in Table 2 and shown on Figure 2 (this is inclusive of MW-22 mentioned above).
- During Year 2 and thereafter, the same 8 wells will be sampled annually. A 4-well subset will also be sampled semiannually (for BTEX only by EPA Method 8260B).

## 3.2 Water Table Monitoring

Potential mounding of the water table will be monitored during the startup period, in part by four water level data loggers (In Situ Rugged TROLL 100) installed in MW-12 and MW-15 near Brown's Creek, at MW-20 near Cupboard Creek, and at MW-2 in the hayfield (the one in MW-2 will be used when operation of the horizontal biosparge wells is initiated). Baseline gauging using an oil-water interface probe will be performed before startup to establish baseline conditions. Then, gauging will be performed twice on the first day of operation, daily during Week 1, and weekly for the remainder of Month 1, as detailed in Table 3. DO will be measured at the end of Month 1 with an optical DO probe.

## 3.3 Zone of Influence Monitoring

DO concentrations will be measured in the 20 wells listed in Table 1 using an optical DO probe to assess the zone of influence from sparging. These measurements will be conducted while the system remains operational to evaluate the maximum potential zone of influence from injection air. These measurements will be conducted in the select group of monitoring wells monthly during the first year of operations. After the first year, these measurements will be conducted quarterly for a year, and then semiannually thereafter. This type of monitoring will be conducted following flow adjustments to portions of the system. After the flow rates are adjusted, DO will be measured monthly to ensure that conditions return to steady-state conditions similar to the previous flow rates. Monitoring frequencies outside of those outlined above will be adjusted as needed in consultation with SCDHEC.

## 3.4 Biodegradation Evaluation Monitoring

Natural attenuation parameters will be analyzed periodically to evaluate the progress of biodegradation. Groundwater samples will be collected prior to startup and annually thereafter from the 21 wells listed in Table 1. These samples will be analyzed for nitrate by EPA Method SM2320B, sulfate by EPA Method D516-9002, ferrous iron by EPA Method SM3500 FE D, carbon dioxide and methane by EPA Method RSK-175, and alkalinity by Method SM2320B.

## 3.5 Surface Water Monitoring

Surface water samples will be collected weekly during startup, monthly for the first 6 months of operations, quarterly for the following year of operations, and then semiannually thereafter, from each of the 16 locations indicated on Figure 6. Since the purpose of the remedial action and the related sampling is to monitor the performance of the measures being implemented, the diffusion aerators in Brown's Creek will not be shut off prior to sampling. Samples will be analyzed for BTEX and naphthalene

using EPA Method 8260B. Samples will be collected in accordance with the QAPP (CH2M, 2017c) and EPA Region 4 protocol.

During these same surface water sampling events, DO measurements will also be taken to evaluate the performance of the Brown's Creek diffusion aerators. DO measurements will be taken upstream and downstream of the diffusion aerators at surface water sampling locations SW-03 (upstream) and SW-01, SW-12, and SW-13 (downstream). DO will be measured using a Hach LDO Probe, Model 2 or equivalent.

### 3.6 Visual Observations

During visits to the site (monthly after the startup period), visual inspections will be performed for evidence of a petroleum sheen on surface waters, odors in the area, and/or distressed vegetation or biota on all areas of the site, including along Brown's Creek and Cupboard Creek. Comprehensive visual inspections of the full site will be conducted prior to startup, weekly during startup operations, and monthly thereafter within the area of the site and additionally along a 3,000-foot section of Brown's Creek and a 600-foot section of Cupboard Creek. The route of inspection is indicated on Figure 6.

If a sheen is observed, it will first be tested to determine whether it is a biological or petroleum sheen using one or both of the following methods:

- Use a stick to try to break up the sheen. A bacterial sheen will typically break into small platelets. A petroleum sheen will quickly try to reform after any disturbance.
- Place a petroleum-absorbent pad on the sheen. The pad will only absorb liquid if petroleum product is present.

If any of the following are observed and have not been previously reported, the observer will immediately notify the CH2M project manager by phone: petroleum sheen, seeps, dead and/or distressed vegetation, dead and/or distressed biota, or out-of-the-ordinary odors. A description of the observation, the time it occurred, its location, and any response actions taken will be included in regular reports to SCDHEC according to the reporting schedule described below.

### 3.7 Air Monitoring

Air monitoring during startup will be performed as described in the Air Monitoring Plan provided with the Startup Plan (CH2M, 2017b; Appendix B). Prior to starting the sparging system or adjusting the airflow rates, air monitoring will be conducted to screen for potential exceedances of the lower explosive limit (LEL) and for volatile organic compounds. LEL monitoring will be conducted with an LEL detector at the City of Belton water branch line valve to the former residence at 112 Lewis Drive. Ambient air monitoring will also be conducted in the breathing zone with a photoionization detector at MW-19 near Cupboard Creek, at MW-40 near Brown's Creek, and at MW-09 in the Hayfield Zone.

### 3.8 Boom Monitoring

Petroleum-absorbent booms are currently in place at different points along Brown's Creek as a contingency measure in case an additional seep manifests at the site. These booms will be inspected on a monthly basis and replaced quarterly at a minimum, or sooner if any boom(s) show evidence of deterioration, yellowing, or vegetative growth, or if it has been damaged or obstructed by trash or debris. When hydrocarbons are no longer detected in surface water samples for three consecutive events, the booms will be removed.

### 3.9 Reporting

Site reporting will be conducted as follows:

- During the startup period, data transmittals consisting of field data sheets (including observations out of the norm), laboratory reports (including chain-of-custody documents), summary tables, and figures will be provided to SCDHEC on a weekly basis as soon as analytical data are received and evaluated. Data transmittals will be provided by electronic mail and followed up with hard copies.
- Quarterly data transmittals noting key performance observations and a comprehensive annual report will be prepared for the first year of operations. The fourth quarterly data transmittal will be incorporated into a comprehensive annual report.
- Semiannual data transmittals and a comprehensive annual report will be prepared during the second and subsequent year(s) of operation.

The comprehensive annual reports will include a summary of sparging system operations, monitoring results, groundwater contour maps, isoconcentration contour maps, and analytical laboratory reports.

Quarterly data transmittals will be submitted within 60 days following the end of the quarter. The comprehensive annual report for the first year of operations will be provided 90 days following the end of the quarter. Semiannual data transmittals will be provided 60 days following the monitoring event, and the annual report will be provided within 90 days following the end of the calendar year. Plantation will also continue to hold quarterly meetings with SCDHEC for at least one year after startup to review the remediation progress.

## Focused Seep Abatement

Two seeps have been identified in the vicinity of Brown's Creek in the eastern portion of the site as follows:

- Seep 1 measures 30 feet long by 12 feet wide and is located approximately 20 feet up the slope from Brown's Creek. This seep is actually a depression from the recovery trench constructed, which occasionally accumulates water and during high groundwater levels can allow groundwater to surface in the depression. A berm stands between Seep 1 and the creek.
- Seep 2 measures 12 feet by 12 feet and is located adjacent to Brown's Creek.

The seep locations are shown on Figure 1.

To abate these seeps, reactive core mat (RCM) will be installed in layers over each seep as described in the *Surface Water Protection Plan Addendum* (CH2M, 2017a) submitted to SCDHEC on January 20, 2017, and approved by SCDHEC on February 10, 2017 (both documents are included in Appendix C). The total footprint of the mitigation effort is approximately 500 square feet (0.01 acre); the total length that is parallel to Brown's Creek is approximately 42 linear feet.

The RCM contains granular activated carbon and is designed to passively control embankment seepage. The carbon is integrated in the RCM between sheets of geotextile that are needle-punched together to keep the carbon contained, regardless of how the material is cut to shape for the application. The conceptual design includes a minimum of four layers of RCM interbedded with 3-inch layers of sand. An erosion-control blanket will be installed at the surface for both seeps. The RCM is to be overlaid on the existing ground with no earthwork cut. The edges of the system will be tapered to tie into existing grade. The RCM and erosion-control mat will be anchored with pins according to the manufacturer's recommendation. Vegetation will not need to be removed to apply the RCM to the seeps.

This activity will be implemented under the U.S. Army Corps of Engineers Nationwide Permit 3, Part (c), which authorizes the use of temporary fill for site maintenance. In accordance with the requirement of the permit, the proposed temporary measure will consist of materials that are placed in a manner that will not be eroded by expected high flows. After concentrations in Brown's Creek have abated, indicating that the seep is no longer impacting the creek, this temporary fill will be removed in its entirety and the affected areas will be regraded to preconstruction elevations and revegetated. The proposed temporary activities covered under Part (c) of Nationwide Permit 3 do not require preconstruction notification.

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SECTION 7 – REFERENCES

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## Tables



Site ID #18693 "Kinder Morgan Belton Pipeline Release"

Technology	Description	Corrective Action Objective <sup>a</sup>			Effectiveness	Implementation
		1	2	3		
Risk reduction, monitored natural attenuation (MNA), and natural source zone depletion (NSZD)	Objective: Rely on natural processes to attenuate hydrocarbons in soil and groundwater and mitigate site risks. Would require long-term monitoring of site-wide groundwater monitoring well network (up to 63 wells) for analysis of VOCs and natural attenuation parameters like carbon dioxide, methane, ferrous iron, etc. Risk reduction would entail the implementation of institutional controls to mitigate ongoing risks to exposure of contaminated groundwater.	Does not meet	Does not meet	Does not meet	<ul style="list-style-type: none"> <li>MNA can be a slow process and may take years to decades for contaminants to reach target levels, particularly if sorbed-phase mass is present and acting as a long-term source to groundwater.</li> <li>MNA and institutional controls are routinely paired with other remedies to mitigate overall site risks.</li> <li>Does not address immediate exposure risks.</li> <li>NSZD can potentially treat up to 700 gallons of LNAPL per acre per year based on studies.</li> <li>Must be paired with other technologies to meet corrective action objectives; can be used as a polishing tool for other LNAPL removal techniques once threats to the creeks have been addressed.</li> </ul>	<ul style="list-style-type: none"> <li>Requires robust long-term groundwater monitoring but is readily implementable. Institutional controls in place at the site and monitoring performed for dissolved-phase attenuation parameters.</li> <li>Would require a comprehensive data to evaluate whether natural processes are sufficient to maintain the rate of natural attenuation within timeframes that are acceptable.</li> <li>Relevant institutional controls that production wells in the vicinity of contaminated groundwater.</li> </ul>
Air/biosparging	Objective: Inject air in wells screened in the saturated zone at low injection rates to promote biodegradation of the dissolved-phase constituents. Injecting air adds dissolved oxygen to the groundwater, which is utilized as an electron acceptor by indigenous microorganisms that can convert hydrocarbons into carbon dioxide and cell mass. Injected air also diffuses up through the saturated zone into the unsaturated zone and oxygenates the vadose zone, promoting aerobic biodegradation of sorbed-phase hydrocarbons as well.	Meets	Meets	Meets	<ul style="list-style-type: none"> <li>Air/biosparging has been highly effective in reducing concentrations of petroleum-related compounds in soil and groundwater at several other sites owned and operated by Plantation within the Piedmont region of North Carolina.</li> <li>Monitoring of dissolved oxygen in groundwater would be required to evaluate the effectiveness of biosparging, in addition to routine performance monitoring for an assessment of VOC reductions.</li> <li>Studies have shown that sparging results in little to no spreading, but the potential for spreading can be mitigated by operating the vertical sparging curtain rows in pulsing sequence from the outside in (from those closest to the creeks to those further away).</li> <li>Shallow bedrock near Cupboard Creek would reduce the radius of sparging influence and necessitate tighter well spacing.</li> <li>Treatment may be achieved in 2 to 5 years.</li> </ul>	<ul style="list-style-type: none"> <li>The materials and services for air/biosparging are readily available. Typical earth contractors can perform the air/biosparging piping.</li> <li>Aboveground treatment and collection systems will be eliminated. Drill cuttings will be eliminated.</li> <li>Only minimal amounts of construction materials generated during operation.</li> <li>It is anticipated that both horizontal and vertical drilling techniques could be used to treat the site. Horizontal drilling is preferred in the Zone. Vertical drilling can be used to protect the "curtains" to protect the groundwater.</li> <li>Lack of human receptors in the vicinity of the site.</li> <li>Although emissions of VOCs can be increased incrementally, emissions will taper off as the biodegradation rates increase.</li> <li>Operation flows and pressures will be readily expanded.</li> </ul>

**Table 1. Remedial Technology Screening**

*Corrective Action Plan Addendum*

*Lewis Drive Remediation Site, Belton, South Carolina*

*Site ID #18693 "Kinder Morgan Belton Pipeline Release"*

Technology	Description	Corrective Action Objective <sup>a</sup>			Effectiveness	Implementation
		1	2	3		
In situ chemical oxidation (ISCO)	<p><b>Objective:</b> Apply chemical oxidants to destroy COCs in soil and groundwater in the target treatment zone. Oxidants destroy the contaminants by direct contact and convert the hydrocarbons to carbon dioxide and water. Typical oxidants include hydrogen peroxide, sodium permanganate, and sodium persulfate. Oxidant selection is based on chemical compatibility, destruction efficiency, and cost, and is often evaluated during bench-scale testing.</p>	Meets	Meets	Meets	<ul style="list-style-type: none"> <li>Does not preferentially target COCs. Additional oxidant will be required based on "oxidizable" material (inorganic and organic) present in subsurface (which may be high).</li> <li>High oxidant demand due to the presence of LNAPL.</li> <li>Bench-scale tests will be required to determine the injection dosage of oxidants selected. A pilot study is also likely to be required.</li> <li>Can increase dissolved oxygen content and subsequent aerobic bioremediation.</li> <li>Contaminants are destroyed through mineralization process, which produces no off-gases that need to be contained/destroyed.</li> <li>Multiple injections would be required due to rebound of dissolved-phase concentrations that results from dissolution of sorbed mass.</li> <li>Potential secondary water quality impacts and temporary geochemical changes due to the generation of residual compounds.</li> <li>Distribution of oxidants can be compromised in heterogeneous environments, which can result in insufficient contact between contaminant mass and oxidant.</li> <li>Concentration reductions from a single application are typically seen in months (versus years).</li> </ul>	<ul style="list-style-type: none"> <li>Requires staging area for mixing</li> <li>Subsurface features (underground) would need to be considered due to the high number of injections required. In addition, the character of selected oxidant and the pipeline evaluated to ensure that the infrastructure.</li> <li>Requires injection permits.</li> <li>No O&amp;M after injections.</li> <li>Minimal waste generation from process</li> <li>Would require health and safety due to the hazards associated with oxidants</li> </ul>
In situ thermal treatment (ISTT)	<p><b>Objective:</b> Use resistance heating or conductive heating to elevate temperatures in the subsurface to enhance or facilitate COC recovery using a combination of groundwater and vapor extraction points. Fluids extracted are treated at the surface.</p> <p>The two most common technologies to implement ISTT are:</p> <ul style="list-style-type: none"> <li>o <b>Thermal conductive heating (TCH):</b> Heaters installed in a sealed well casing and spaced on a defined geometric array are connected to electrical power.</li> <li>o <b>Electrical resistance heating (ERH):</b></li> </ul>	Meets	Meets	Meets	<ul style="list-style-type: none"> <li>Highly effective technology for focused source area treatment. Not likely cost-effective for the 18-acre dissolved-phase plume at Lewis Drive.</li> <li>Subsurface features can potentially interfere or be negatively impacted by electrical current flow.</li> <li>Soil moisture is required for heat generation for ERH. Not required for TCH.</li> <li>Shallow groundwater increases potential for energy loss and complicates vapor control.</li> <li>Site characterization and COC delineation is key to effective implementation.</li> <li>Residual heat can help facilitate some downgradient bioremediation/attenuation.</li> </ul>	<ul style="list-style-type: none"> <li>ISTT would require direct access to vertical electrode borings and ISTT would also require space for vapor treatment, and groundwater treatment, and groundwater treatment with existing electrode borings.</li> <li>Compatibility with existing electrode borings to determine if upgrading is required.</li> <li>ISTT on this scale would be expensive.</li> <li>Few contractors are capable of heating of subsurface soils without causing infrastructure damage.</li> <li>Heating of subsurface soils would require pipeline infrastructure, such as protection.</li> </ul>

**Table 1. Remedial Technology Screening**

*Corrective Action Plan Addendum*

*Lewis Drive Remediation Site, Belton, South Carolina*

*Site ID #18693 "Kinder Morgan Belton Pipeline Release"*

Technology	Description	Corrective Action Objective <sup>a</sup>			Effectiveness	Implementation
		1	2	3		
Excavation and product removal	Objective: Excavate and treat contaminated soils either by ex situ methods (thermal desorption) or by offsite transport and disposal. Selection of the soil treatment method is largely based on cost-effectiveness.	Meets	Meets	Meets	<ul style="list-style-type: none"> <li>Excavation is effective at permanently removing contaminated soil from the site and is limited only by direct access to the soil and cost considerations.</li> <li>Would not address impacts below bedrock interface.</li> <li>High certainty of removal of impacted soil and product above bedrock.</li> <li>Offsite disposal would not destroy the hydrocarbon mass; only relocate it to a landfill.</li> <li>Likely fastest to achieve goals.</li> </ul>	<ul style="list-style-type: none"> <li>Requires direct access to all cc require excessive revegetation and Brown's Creek wetlands.</li> <li>Due to smear zone impacts, cc above the water table, which i the site. Excavation to this def benching and layback, or short sidewalls (for example, sheet p</li> <li>Requires extensive waste han 1,000,000 cubic yards of mate</li> <li>Heavy impact to community fr site.</li> <li>Excavation would be challengi corridor itself.</li> <li>The materials and services for readily available. Typical earth work.</li> </ul>
Physical or hydraulic containment (barrier wall, French drain, slurry wall)	Objective: Use engineered barriers to either control horizontal migration of LNAPL, isolate LNAPL as a vapor or dissolved source, block physical access to the LNAPL body, or prevent recharge infiltration through the LNAPL body (vertical barrier).	Does not meet	Meets	Does not meet	<ul style="list-style-type: none"> <li>Extensive groundwater modeling and further investigation pertaining to the groundwater-surface water interface would be required during the design process.</li> <li>Does not address source.</li> <li>Does not treat dissolved plume.</li> <li>Since this alternative does not directly address the source, the time to achieve goals may be in the range of 30+ years.</li> <li>Requires the installation of groundwater recovery system for groundwater and LNAPL that accumulates behind the barrier; COCs can be effectively treated with aboveground treatment systems. Without source treatment, groundwater recovery would be required over a long term.</li> <li>The bottom of the barrier could be effectively keyed into bedrock to prevent underflow.</li> </ul>	<ul style="list-style-type: none"> <li>Construction is simpler due to in the Brown's Creek and Cupt</li> <li>Construction in the hayfield is up to 50 feet in some areas.</li> <li>The materials and services for readily available. Typical earth contractors can perform the ir piping.</li> <li>Excavating and installing woul removal in sensitive wetland a permitting would be required wetland areas.</li> <li>A French drain system could b</li> <li>A barrier wall would not be a l expandable.</li> <li>Requires continual monitoring mounding behind the barrier c</li> <li>Additional soil waste would be alternatives.</li> </ul>

**Table 1. Remedial Technology Screening**

*Corrective Action Plan Addendum*

*Lewis Drive Remediation Site, Belton, South Carolina*

*Site ID #18693 "Kinder Morgan Belton Pipeline Release"*

Technology	Description	Corrective Action Objective <sup>a</sup>			Effectiveness	Implement
		1	2	3		
Permeable reactive barrier (PRB) or permeable adsorptive barrier (PAB)	Objective: Treat impacted groundwater by digging trenches at the edge of the dissolved plume and filling with reactive/adsorptive media to destroy or adsorb organic compounds as groundwater passes through. A typical media for adsorption consists of 25% organoclay, which is hydrophobic and organophilic, and 75% granular backfill.	Does not meet	Meets	Meets	<ul style="list-style-type: none"> <li>• Extensive groundwater modeling and further investigation pertaining to the groundwater-surface water interface would be required during the design process.</li> <li>• Does not address source.</li> <li>• Only treats that portion of the dissolved plume that passes through the barrier.</li> <li>• Since this alternative does not directly address the source, the time to achieve goals may be in the range of 30+ years.</li> <li>• The bottom of the barrier could be effectively keyed into bedrock to prevent underflow.</li> <li>• Must be paired with other technologies to meet corrective action objectives.</li> <li>• Treatment media may require replacement.</li> </ul>	<ul style="list-style-type: none"> <li>• Passive system allows for mini installation.</li> <li>• Construction is simpler due to in the Brown's Creek and Cuprt</li> <li>• Construction in the hayfield is up to 50 feet in some areas.</li> <li>• The materials and services for readily available. Typical earth work.</li> <li>• Excavating and installing woul removal in sensitive wetland a permitting would be required wetland areas.</li> <li>• Can be installed rapidly.</li> <li>• Not a flexible remedy or readi</li> <li>• Requires continual monitoring short-circuiting around the ba</li> <li>• Additional soil waste would be alternatives.</li> </ul>
Soil vapor extraction (SVE)	Objective: Treat contaminated soils by drilling wells screened within the vadose zone and applying a vacuum to the wellhead, thereby inducing the flow of soil vapor into the well for treatment above grade. Typical vapor treatment methods would include activated carbon or thermal oxidation. Selection of the soil vapor treatment method is largely based on cost-effectiveness.	Meets	Does not meet	Does not meet	<ul style="list-style-type: none"> <li>• High vapor pressures of hydrocarbon compounds make them amenable to vapor extraction.</li> <li>• SVE is a well-established technology for remediating hydrocarbon impacts to soil.</li> <li>• SVE would have minimal effect on dissolved-phase impacts and must be paired with a groundwater recovery/treatment technology.</li> <li>• Mass removal can be tracked with SVE.</li> <li>• Desorption from soil/attenuation of LNAPL are both slow processes, and may result in treatment times of 5 to 10 years.</li> <li>• The vadose zone is only 5 to 15 feet thick in the Cupboard Creek and Brown's Creek Protection Zones and 5 to 10 feet thick in the Shallow Bedrock Zone, which results in a low radius of influence and the requirement for more SVE wells.</li> </ul>	<ul style="list-style-type: none"> <li>• Would likely require horizontal to access to all contaminated :</li> <li>• SVE technology is conventione includes a blower, piping and i Typical earthwork, mechanica perform the installation of the Requires air permitting for vaj must be treated by adsorptior</li> <li>• Drill cuttings will be generater treatment media will be gener</li> <li>• Operation is flexible and the s'</li> </ul>

**Table 1. Remedial Technology Screening**

*Corrective Action Plan Addendum*

*Lewis Drive Remediation Site, Belton, South Carolina*

*Site ID #18693 "Kinder Morgan Belton Pipeline Release"*

Technology	Description	Corrective Action Objective <sup>a</sup>			Effectiveness	Implementation
		1	2	3		
Multi-phase extraction (MPE)	Objective: Reduce LNAPL saturations in subsurface through an applied vacuum in conjunction with groundwater extraction. LNAPL is primarily removed as a liquid, but bioturbation and enhanced fluid recovery also remove LNAPL through volatilization and aerobic degradation. This could be deployed as a permanent system or a mobile system to enhance other technologies. Could also be employed as a contingency measure. Treated groundwater may be reinjected into the subsurface upgradient or discharged to surface water (as in a pump and treat system). Surfactant solutions can also be injected to enhance recoverable product.	Meets	Does not meet	Does not meet	<ul style="list-style-type: none"> <li>• LNAPL sorbed to soil could persist as a long-term source and may not be recoverable without surfactant enhancements.</li> <li>• Surfactant enhancements may mobilize LNAPL into creeks if hydraulic control is not maintained. Treatability studies would be required to evaluate this potential.</li> <li>• The amount of mobile product will diminish over time. Baildown testing will be required to determine the effective frequency for extraction events.</li> <li>• MPE has a tendency for longer remediation times than technologies that rely on biological degradation or volatilization.</li> </ul>	<ul style="list-style-type: none"> <li>• Recovered liquid and condensate or offsite disposal. Onsite treatment requires NPDES permit for the treated liquid.</li> <li>• Contactors are readily available and quick to implement, but permit time.</li> <li>• Mobile units are highly flexible and adapted to variable site conditions.</li> <li>• Recovery wells are susceptible to frequent maintenance.</li> <li>• Potentially requires full-time operation.</li> <li>• High regulator acceptance required.</li> </ul>

**Notes:**

<sup>a</sup> Corrective action objectives are the following:

1. Remove product to the maximum extent practicable.
2. Abate surface water impacts to maintain surface water criteria.
3. Reduce concentrations of dissolved hydrocarbons in groundwater to be protective of surface water quality.

<sup>b</sup> Cost estimates correlate to the following rough orders of magnitude:

- **Capital:** High: >\$2 million; Medium: >\$1 million; Low: <\$1 million
- **Annual:** High: >\$200,000; Medium: >\$100,000; Low: <\$100,000

COC = chemical of concern

ERH = electrical resistance heating

ISCO = in situ chemical oxidation

ISTT = in situ thermal treatment

LNAPL = light non-aqueous phase liquid

MNA = monitored natural attenuation

MPE = multi-phase extraction

NPDES = National Pollutant Discharge Elimination System

NSZD = natural source zone depletion

O&M = operations and maintenance

**Table 2. Revised Groundwater Monitoring Plan**

*Corrective Action Plan Addendum*

*Lewis Drive Remediation Site, Belton, South Carolina*

*Site ID #18693 "Kinder Morgan Belton Pipeline Release"*

Site ID #18093 - Kinder Morgan Detroit Pipeline Release														
Frequency:	Contaminant Reduction Evaluation					Biodegradation Evaluation		Zone of Influence	Notes					
	Baseline	Monthly (Year 1)	Quarterly (Year 1)	Annual (Year 2 and following)	Semiannual (Year 2 and following)	Baseline	Annual							
Analytes:	BTEX, Naphthalene, MTBE, and 1,2-DCA <sup>b</sup>					Nitrate, Sulfate, Ferrous Iron, Carbon Dioxide, Methane, and Alkalinity <sup>d</sup>		Dissolved Oxygen						
Well ID	BTEX <sup>c</sup>													
Brown's Creek Protection Zone														
MW-12	Y		Y	Y	Y	Y	Y	Y	Typically contains product					
MW-12B	Y		Y	Y	Y			Y						
MW-15	Y		Y	Y	Y		Y	Y						
MW-15B	Y		Y	Y	Y			Y						
MW-24	Y		Y	Y	Y									
MW-24B	Y		Y	Y	Y	Y	Y							
MW-25	Y	Y	Y	Y	Y		Y	Y						
MW-25B	Y		Y	Y	Y			Y						
MW-28	Y	Y	Y	Y	Y	Y	Y	Y						
MW-34		Y	Y	Y	Y									
MW-35	Y	Y	Y	Y	Y	Y	Y							
MW-37	Y		Y	Y	Y									
MW-38	Y	Y	Y	Y	Y									
MW-39	Y		Y	Y	Y	Y	Y							
MW-40	Y		Y	Y	Y									
MW-41	Y		Y	Y	Y	Y	Y							
MW-42	Y		Y	Y	Y	Y	Y							
MW-43		Y	Y	Y	Y	Y	Y							
MW-43B			Y	Y	Y									
Brown's Creek Subtotal:						16	6	19	19	14	7	7	7	
Cupboard Creek Protection Zone														
MW-19	Y		Y	Y	Y	Y	Y	Y	Y	Typically contains product				
MW-20	Y		Y	Y	Y			Y	Y					
MW-23	Y		Y	Y	Y									
MW-23B	Y		Y	Y	Y									
MW-26	Y	Y	Y	Y	Y	Y	Y							
MW-26B	Y		Y	Y	Y	Y	Y							
MW-29	Y	Y	Y	Y	Y	Y	Y		Y					
Cupboard Creek Subtotal:						7	2	7	7	6	2	2	3	

**Table 2. Revised Groundwater Monitoring Plan**  
**Corrective Action Plan Addendum**  
 Lewis Drive Remediation Site, Belton, South Carolina  
 Site ID #18693 "Kinder Morgan Belton Pipeline Release"

Frequency:	Contaminant Reduction Evaluation					Biodegradation Evaluation	Zone of Influence	Notes
	Baseline	Monthly (Year 1)	Quarterly (Year 1)	Annual (Year 2 and following)	Semiannual (Year 2 and following)			
Analytes:	BTEX, Naphthalene, MTBE, and 1,2-DCA <sup>b</sup>					Nitrate, Sulfate, Ferrous Iron, Carbon Dioxide, Methane, and Alkalinity <sup>d</sup>	Dissolved Oxygen	
Well ID	BTEX <sup>c</sup>							
Hayfield Zone								
MW-02	Y		Y	Y	Y	Y	Y	Typically contains product
MW-02B	Y		Y	Y	Y		Y	
MW-03	Y		Y	Y	Y	Y	Y	
MW-04	Y		Y	Y	Y	Y	Y	
MW-05	Y	Y	Y	Y	Y			
MW-06	Y		Y	Y	Y			
MW-07	Y		Y	Y	Y			
MW-08	Y		Y	Y	Y	Y	Y	Typically contains product
MW-09	Y		Y	Y	Y	Y	Y	
MW-10	Y	Y	Y	Y	Y	Y	Y	
MW-13	Y		Y	Y	Y	Y	Y	
MW-13B	Y		Y	Y	Y			
MW-14	Y		Y	Y	Y			
MW-14B	Y		Y	Y	Y			
MW-16	Y		Y	Y	Y			
MW-17	Y		Y	Y	Y	Y	Y	Typically contains product
MW-17B	Y		Y	Y	Y			
MW-18	Y		Y	Y	Y	Y	Y	Typically contains product
MW-21	Y		Y	Y	Y			
MW-30	Y	Y	Y	Y	Y	Y	Y	Typically contains product
MW-31	Y	Y	Y	Y	Y			
MW-31B								
MW-32	Y		Y	Y	Y		Y	
MW-33						Y		
MW-33T								
MW-36								
MW-36B	Y		Y	Y	Y			
MW-45	Y	Y	Y	Y	Y			
MW-45B	Y		Y	Y	Y			
TW-55							Y	
TW-59							Y	

**Table 2. Revised Groundwater Monitoring Plan**

Corrective Action Plan Addendum  
Lewis Drive Remediation Site, Belton, South Carolina  
Site ID #18693 "Kinder Morgan Belton Pipeline Release"

Frequency:	Well ID	Contaminant Reduction Evaluation					Biodegradation Evaluation		Zone of Influence		Notes
		Baseline	Monthly (Year 1)	Quarterly (Year 1)	Annual (Year 2 and following)	Semiannual (Year 2 and following)	Baseline	Annual	Monthly (Year 1) <sup>a</sup>	Dissolved Oxygen	
Analytes:		BTEX, Naphthalene, MTBE, and 1,2-DCA <sup>b</sup>				BTEX <sup>c</sup>	Nitrate, Sulfate, Ferrous Iron, Carbon Dioxide, Methane, and Alkalinity <sup>d</sup>				
	TW-60								Y		
	TW-64								Y		
	TW-66								Y		
	TW-67								Y		
	TW-73								Y		
	TW-96								Y		
Hayfield Subtotal:		26	5	26	26	19	9	9	18		
Shallow Bedrock Zone	MW-01	Y		Y	Y	Y	Y	Y	Y		Typically contains product
	MW-01B	Y		Y	Y	Y			Y		
	MW-11	Y		Y	Y	Y	Y	Y	Y		
	MW-22	Y	Y	Y	Y	Y	Y	Y	Y		
	MW-27	Y		Y	Y	Y					
	MW-27B	Y		Y	Y	Y					
	MW-44	Y		Y	Y	Y					
	MW-44B	Y		Y	Y	Y					
Shallow Bedrock Subtotal:		8	1	8	8	4	3	3	4		
Grand Totals:		57	14	60	60	43	21	21	32		

**Notes:**

<sup>a</sup> Zone of influence monitoring for dissolved oxygen will be performed monthly for Year 1 and as-needed thereafter as air sparge flow rates are adjusted.

<sup>b</sup> Contaminant Reduction Evaluation: BTEX, naphthalene, MTBE, and 1,2-DCA by EPA Method 8260B

<sup>c</sup> Contaminant Reduction Evaluation (semiannual events): BTEX by EPA Method 8260B

<sup>d</sup> Biodegradation Evaluation: Nitrate by EPA Method SM2320B, sulfate by EPA Method DS16-9002, ferrous iron by EPA Method SM3500 FE D, carbon dioxide and methane by EPA Method RSK-175, and alkalinity by Method SM2320B

1,2-DCA = 1,2-dichloroethane

BTEX = benzene, toluene, ethylbenzene, and xylenes

EPA = U.S. Environmental Protection Agency

MTBE = methyl tertiary butyl ether



Table 3. Water Table and Product Monitoring Schedule  
 Corrective Action Plan Addendum  
 Lewis Drive Remediation Site, Belton, South Carolina  
 Site ID #18693 "Kinder Morgan Belton Pipeline Release"

Location	Baseline	Twice/Day on Day 1	Daily for Week 1	Weekly for Month 1	End of Month 1
<b>Cupboard Creek</b>					
MW-19	WL	WL	WL	WL	WL, DO
MW-20 <sup>a</sup>	WL	WL	WL	WL	WL, DO
MW-29	WL	WL	WL	WL	WL, DO
TW-67	WL	WL	WL	WL	WL, DO
TW-73	WL	WL	WL	WL	WL, DO
<b>Brown's Creek</b>					
MW-12 <sup>a</sup>	WL	WL	WL	WL	WL, DO
MW-12B	WL	--	--	--	WL, DO
MW-15 <sup>a</sup>	WL	WL	WL	WL	WL, DO
MW-15B	WL	--	--	--	WL, DO
MW-25	WL	WL	WL	WL	WL, DO
MW-25B	WL	--	--	--	WL, DO
MW-28	WL	WL	WL	WL	WL, DO
MW-35	WL	WL	WL <sup>b</sup>	WL	WL, DO
MW-39	WL	WL	WL <sup>b</sup>	WL	WL, DO
MW-41	WL	WL	WL <sup>b</sup>	WL	WL, DO
TW-59	WL	WL	WL	WL	WL, DO
TW-60	WL	WL	WL	WL	WL, DO
TW-66	WL	WL	WL	WL	WL, DO

Notes:

<sup>a</sup> Monitoring wells MW-02, MW-12, MW-15, and MW-20 will have dedicated loggers (TROLL 100) for continuous water level logging.

<sup>b</sup> Monitoring wells MW-35, MW-39, and MW-41 will be gauged daily for 2 weeks, after which the gauging frequency will be reevaluated.

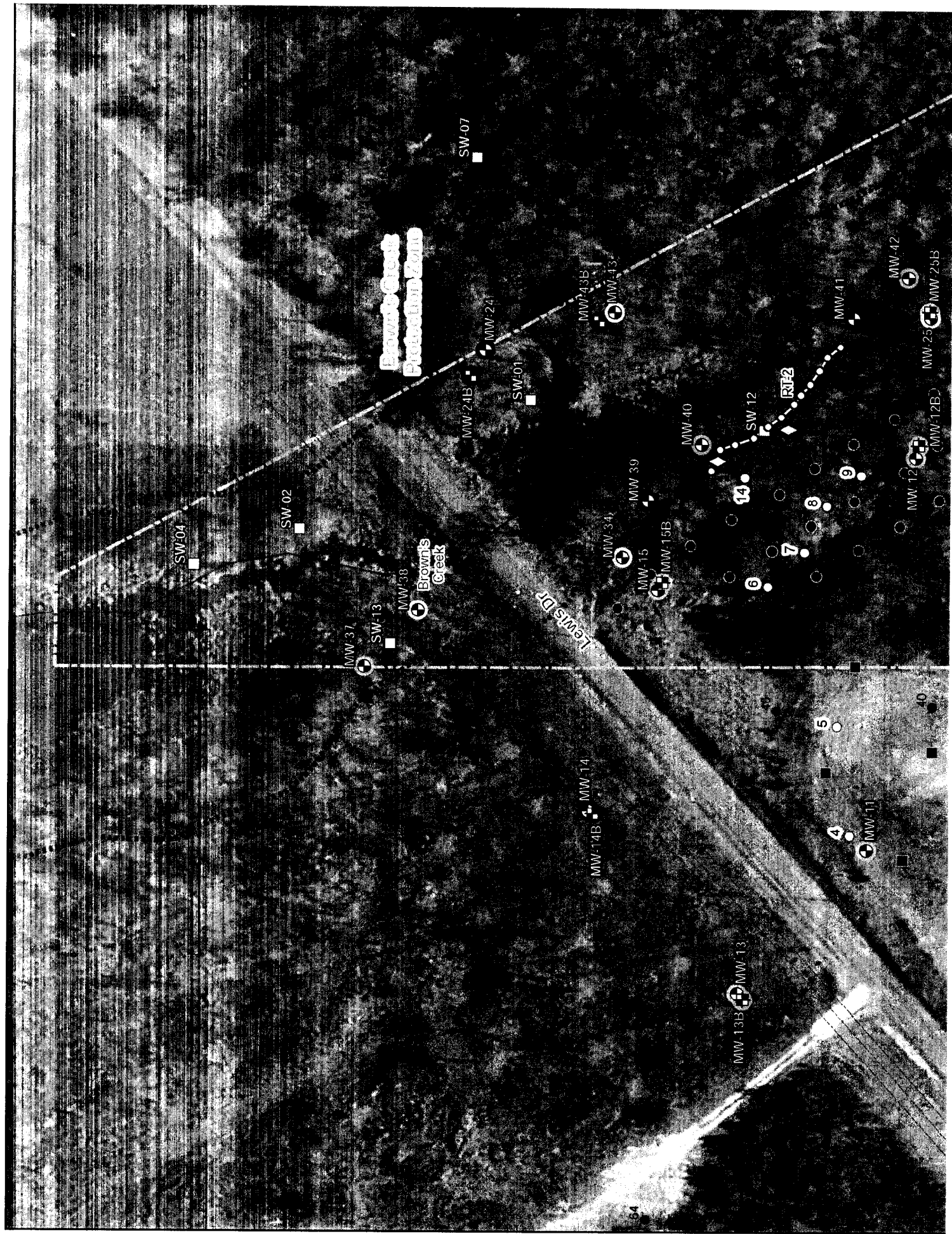
-- = not applicable

DO = dissolved oxygen

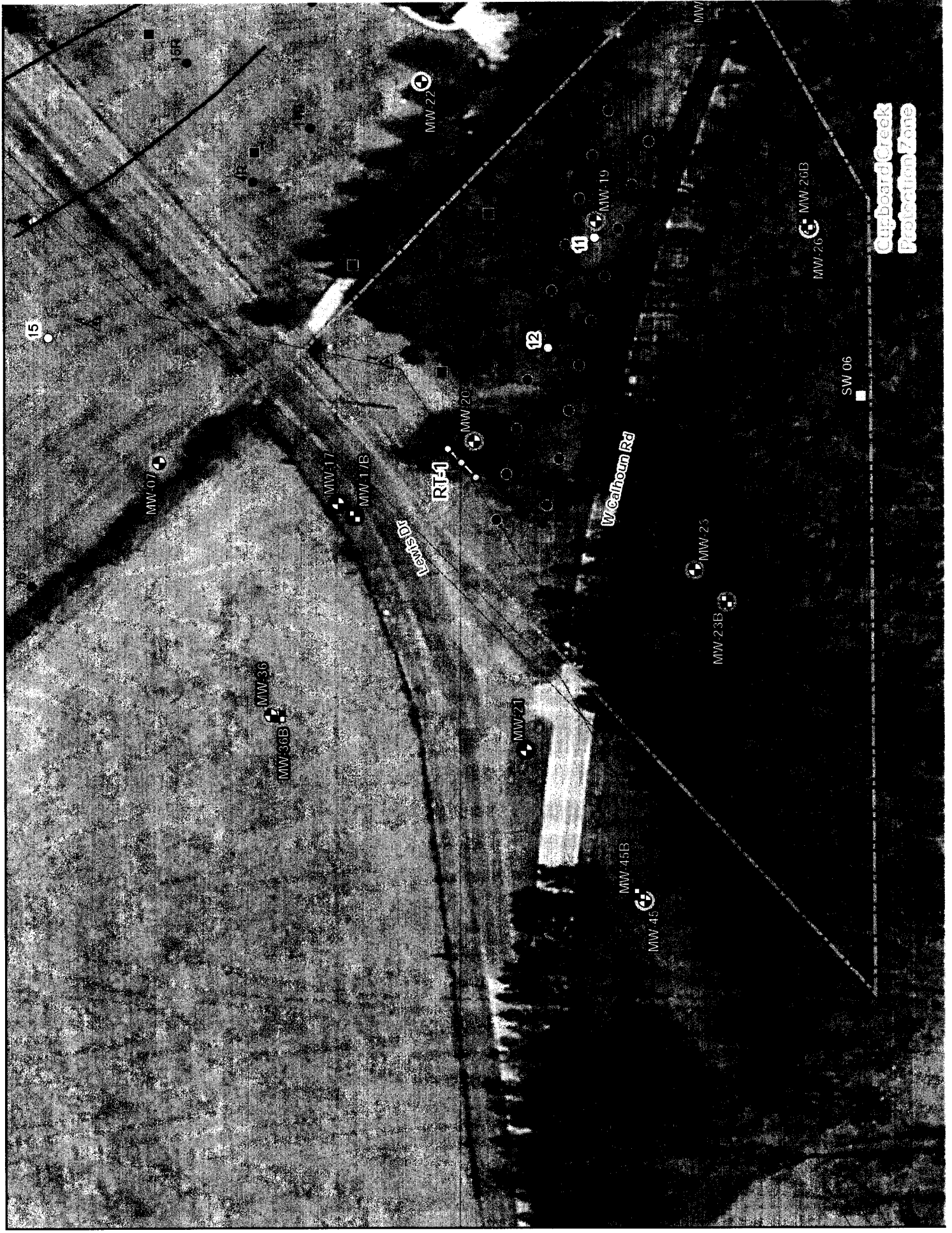
WL = water level and product gauging

## Figures



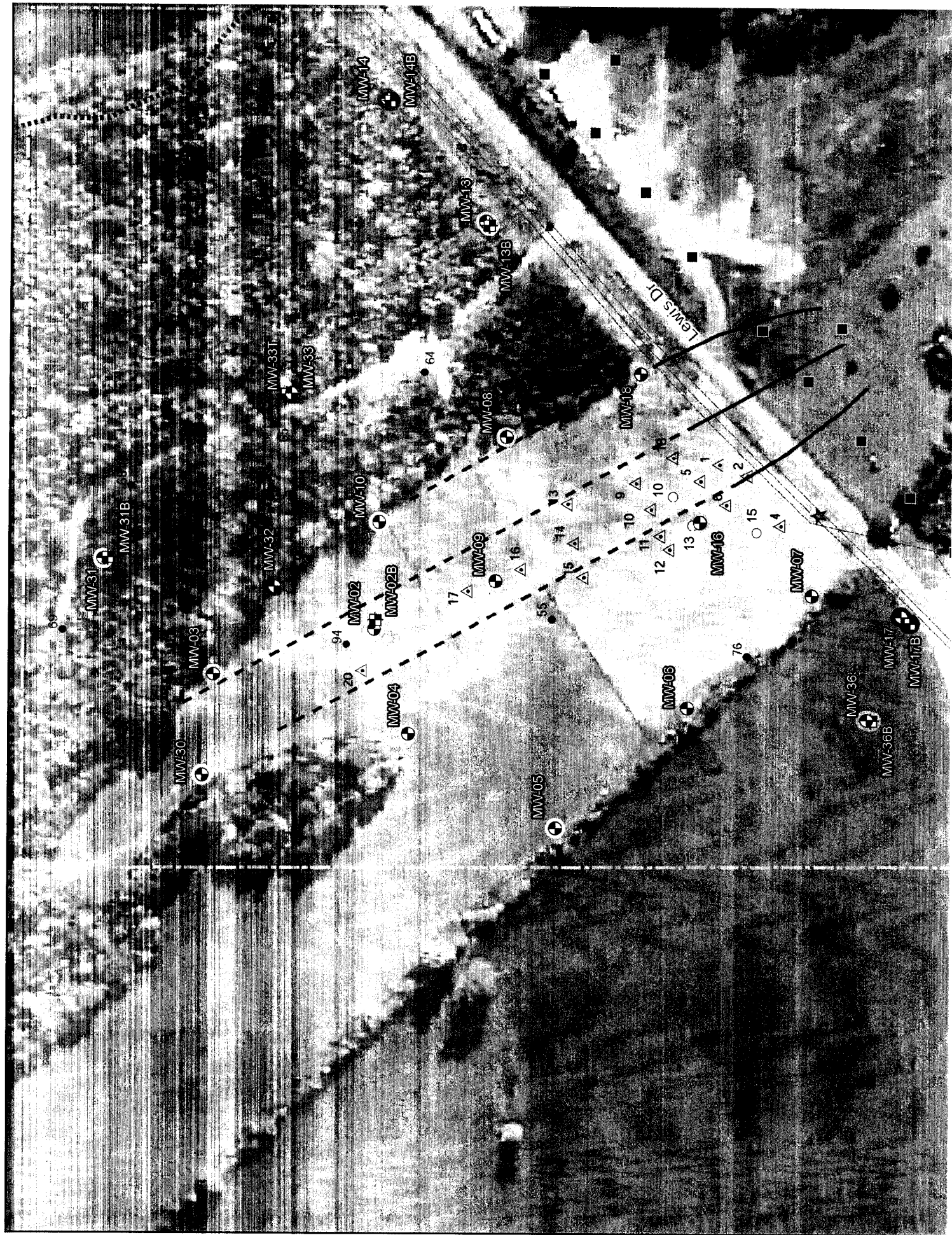






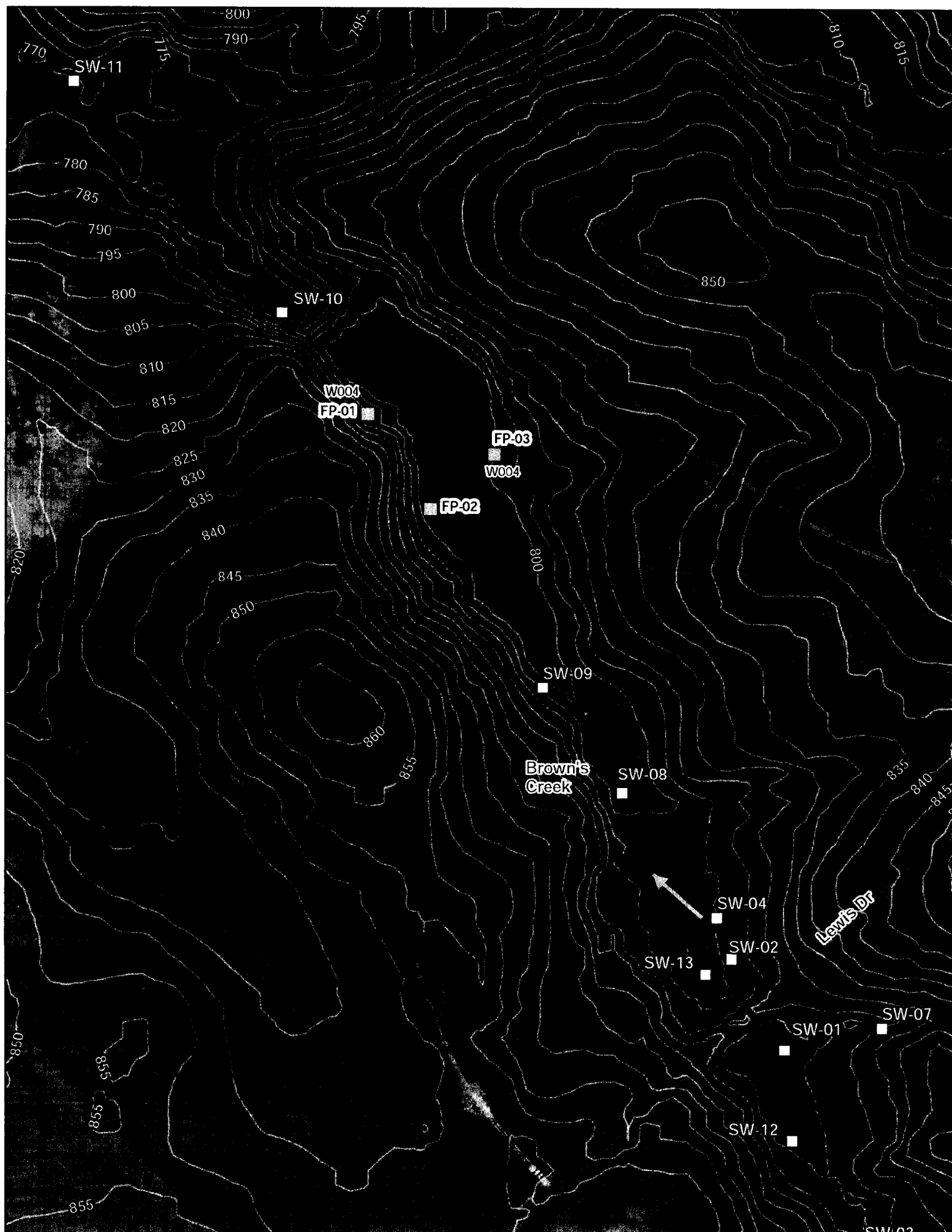
Cupboard Creek  
Protection Zone

SW 06











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March 1, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, South Carolina 29201

Subject:       Quality Assurance Project Plan, Revision 2  
                  Plantation Pipe Line Company  
                  Lewis Drive Remediation Site, Belton, South Carolina  
                  Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared the enclosed Quality Assurance Project Plan (QAPP) Revision 2 for the Lewis Drive Site located in Belton, Anderson County, South Carolina. This QAPP supersedes previous revisions of the QAPP.

If you have any further questions or concerns, please contact me at (919) 760-1777 or Mr. Jerry Aycock with Plantation at (770) 751-4165.

Regards,  
CH2M HILL Engineers, Inc.

A handwritten signature in black ink, appearing to read "William M. Waldron".

William M. Waldron, P.E.  
Senior Project Manager

Enclosure:

*Quality Assurance Project Plan, Revision 2, Lewis Drive Remediation Site, Belton, South Carolina,  
Site ID #18693, ("Kinder Morgan Belton Pipeline Release"), March 1, 2017*

c: (via e-mail)

Jerry Aycock, Plantation, Jerry\_Aycock@kindermorgan.com  
Mary Clair Lyons, Esq., Plantation, Mary\_Lyons@kindermorgan.com  
Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC, rmorton@wcsr.com  
File

# **Quality Assurance Project Plan (Revision 2)**

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# Section A: Project Management

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## A1 Title and Approval Page

Quality Assurance Project Plan  
Addendum to the SCDHEC UST Programmatic QAPP  
For  
Plantation Pipe Line Company/Site ID No. 18693

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Lewis Drive, Belton, Anderson County, South Carolina

---

Prepared by: CH2M HILL Engineers, Inc. (CH2M)

---

Date: February 9, 2015  
Revised: March 1, 2017  
CH2M HILL Engineers, Inc. (CH2M)

---

### Approvals

Bobbi Coleman  
SCDHEC Project Manager

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Jonathan Grimes  
Contractor QA Manager

  
Signature

\_\_\_\_\_  
Date 3/1/17

William Waldron  
Contractor Project Manager

  
Signature

\_\_\_\_\_  
Date 3/1/17

Tom Wiley  
Plan Preparer

  
Signature

\_\_\_\_\_  
Date 3/1/17

Other signatures may be required and should be added as directed by SCDHEC UST Management Division.

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## A3 Distribution and Project Organization List

Name	Title/Role from UST Master QAPP	License/ Number/ Exp. date	Organization/Address	Telephone Number	Email Address
Bobbi Coleman	SCDHEC Technical Project Manager		SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-898-0673	<a href="mailto:colemabj@shhec.sc.gov">colemabj@shhec.sc.gov</a>
Thomas Kessler	Senior Technical Consultant		CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-530-4197	<a href="mailto:Thomas.Kessler@CH2M.com">Thomas.Kessler@CH2M.com</a>
William Waldron	Contractor Project/Site Manager		CH2M 3120 Highwoods Blvd Suite 214 Raleigh, NC 27604	919-760-1777	<a href="mailto:wwaldron@ch2m.com">wwaldron@ch2m.com</a>
Tom Wiley	Site Assessment Manager		CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-530-4388	<a href="mailto:twiley@ch2m.com">twiley@ch2m.com</a>
Jonathan Grimes	Lead Hydrologist	PG/ 2235/6/30/ 17	CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-530-4146	<a href="mailto:jgrimes@ch2m.com">jgrimes@ch2m.com</a>
Gerald Couch	Contractor Field Team Leader		CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-488-8837	<a href="mailto:Gerald.Couch@ch2m.com">Gerald.Couch@ch2m.com</a>
Chris McCord	Laboratory Manager		ESC Lab Sciences 12065 Lebanon Rd Mt. Juliet, TN	704-614-2660	<a href="mailto:bkroll@esclabsciences.com">bkroll@esclabsciences.com</a>
Martin Johnson	Drilling Manager	Driller/ 2321/ 6/30/15	AE Drilling 2 United Way Greenville, SC 29607	864-288-1986	<a href="mailto:mjohnson@aedrilling.com">mjohnson@aedrilling.com</a>
James Pearsall	Surveyor	Surveyor/ 27458/ 6/30/15	Taylor Wiseman & Taylor 700 Forest Point Circle Suite 166 Charlotte, NC 28273	704-527-2535	<a href="mailto:pearsall@taylorwiseman.com">pearsall@taylorwiseman.com</a>

It is understood that certification records must be produced if requested by SCDHEC.

## A4 Problem Definition/Background

Discuss the background (as much as is known) of the site and appropriate historical information, and why this site is being assessed.

- Plantation Pipe Line Company (Plantation) operates a 26-inch fuel transmission line that passes along the western edge of Lewis Drive near Belton, Anderson County, South Carolina. On December

8, 2014 a fuel release occurred on the 26-inch the line approximately 600 feet north of the intersection of Lewis Drive and W Calhoun Road (State RD S-4 205) (Figure 1). Between December 8, 2014 and February 2, 2015, Plantation determined the release to be gasoline with a minor amount of diesel, Plantation and its contractors repaired the pipeline, installed product recovery sumps, product recovery wells, temporary wells, and product interceptor trenches upgradient of Brown's Creek (Figure 1). Between December 2014 and February 2017, Plantation and its contractors have installed 60 monitoring wells, 36 piezometers, and a sparging remediation system consisting of 45 vertical wells and 3 horizontal wells. Figure 1 also illustrates the extent of product as of May 2016.

Please answer the following: Does this project fall under UST or Brownfields area?

- The site has never operated USTs, but this release will be regulated by rules promulgated under the SCDHEC UST Management Division.

## A5 Project/Task Description

1. Summarize what is known about the work to be done. This can be a short sentence indicating what the Scope of this project is (see Master QAPP Section A6).
  - The work proposed includes: 1) the installation of additional overburden monitoring wells and bedrock monitoring wells to evaluate the distribution of dissolved hydrocarbons in groundwater along the periphery of the product body area, 2) the establishment of additional surface water sampling stations to monitor surface water quality in Cupboard Creek and Browns Creek and wetland area that borders the southern edge of the site; 3) the installation of up to 16 vertical bedrock sparging wells within the shallow bedrock layer to allow the injected air to be distributed via the same fracture network that transmitted impacts to groundwater in this zone.
2. Are there any time or resource constraints? Include those factors that may interfere with the tentative schedule.
  - Constraints may include weather, equipment failure/availability, subcontractor availability, and property access.

## A6 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)

Detail the geographical area that is to be part of the project. Maps should be included to show not only the topography and the geographical area of the State, but also to show more detail of the site itself including property lines.

- Figure 2 shows the locations of existing and proposed monitoring wells and sparging wells. Figure 3 shows the locations of surface water sampling points.

## Monitoring Well Installation and Development

### Regolith Monitoring Well Construction

The regolith monitoring wells will be constructed as Type II 2-inch diameter monitoring wells, and will be constructed in accordance with SCDHEC Well Standards R.61-71. All wells will be drilled and constructed by a South Carolina certified well driller in accordance with 40-23-10 seq. The wells will be drilled using hollow-stem auger (HSA). The wells will be constructed using 10 to 15 feet of 2-inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) well screen and a variable amount of 2-inch ID Schedule 40 PVC riser. The screen will have a slot size of 0.010-inches, and the screen will be positioned to straddle the water table to allow

product (if present) to enter the well, and to account for seasonal fluctuations of the water table. Sand pack will be placed in the annular space between the borehole and well screen and will be brought to a height 2-feet above the top of the well screen. A 2-foot bentonite seal will be placed above the sand pack and will be hydrated. The seal will be allowed to hydrate for a minimum of 1-hour before placing grout above the seal. A grout seal containing Portland cement mixed with 3 to 5 percent bentonite will be placed above the grout seal by forced injection via tremie pipe and will be brought to within 1-foot of ground surface.

#### ***Hand Installation of Regolith Monitoring Well***

At one location near Brown's Creek, it was determined that installing a well was not feasible using a mechanical drill rig, due to steep slopes and ditches and unstable ground surface (super saturated soils). Therefore the well (MW-34) will be installed using a hand auger due to site access issues.

The borehole will be advanced to a target depth of approximately 5 feet using a hand auger to create a nominal 4-inch diameter borehole. During borehole advancement, soil samples will be field screened for VOCs using a photoionization detector and characterized for lithology using the soil cuttings collected from the auger bucket.

The well will be constructed using 2.5-feet of schedule 40 PVC 2-inch prepacked internal diameter (ID) by 2.8-inch OD well screen and a variable amount of 2-inch ID Schedule 40 PVC riser. The screen will have a slot size of 0.010-inches. Additional sand pack shall be placed in the annular space between the borehole and prepacked well screen and shall be brought to a height 0.5-foot above the top of the well screen. A bentonite seal with a minimum thickness of 12-inches shall be placed above the sand pack and shall be hydrated. The seal shall be allowed to hydrate for a minimum of 1-hour before placing grout above the seal. A grout seal of at least 1-foot length, containing Portland cement mixed with 3 to 5 percent bentonite shall be placed above the grout seal and shall be brought to within 1-foot of ground surface.

The aboveground completion will be constructed above grade using a 6-inch diameter, approximately 3-feet high, locking anodized aluminum protective well casing set in a cylindrical concrete pad. The concrete pad will extend 1 ft above and 1 ft below the ground surface to ensure a better surface seal and protect the well from flooding. A weep hole will be drilled in the protective casing.

#### **Bedrock Monitoring Wells**

The five bedrock wells will be constructed as Type III wells (open hole in bedrock aquifer). The wells will be constructed in accordance with SCDHEC Well Standards R.61-71. All wells will be drilled and constructed by a South Carolina certified well driller in accordance with 40-23-10 seq. The wells will be drilled using a combination of HSA, rock coring, and air rotary or hammer. In each case, HSA drilling techniques will be used to drill through the regolith until auger refusal is encountered. A temporary casing will be installed and NQ-sized rock coring advanced until competent bedrock is encountered, as defined by a rock quality designation of 75% or greater. Following completion of rock coring, a nominal 10-inch borehole will be advanced 5 to 10 feet into competent bedrock. A six-inch steel casing will be installed in the borehole and grouted in place using by a forced-injection method via tremie pipe. Once the grout has cured for a minimum of 24 hours, a nominal 6-inch borehole will be advanced using air rotary or air hammer techniques approximately 10 to 20 feet or until the first water bearing fracture is encountered.

#### **Well Completions (Regolith and Bedrock)**

The wells will be finished as either flush-mount completions, or aboveground locations depending on specific well location requirements. Flush-mount wells will be installed in areas that are subject to vehicle and/or equipment traffic (roads, lawns), and while aboveground completions will be installed in areas not subject to vehicle/equipment traffic (peripheral edge of field), or in areas where a flush-mount well would be difficult to locate (woods). The flush-mount wells will be constructed using a watertight 8-inch diameter well vault set in a 2-foot square concrete pad recessed to surrounding grade. The aboveground completions



will be constructed using a locking well vault set in a 2-foot square concrete pad that is surrounded by four, steel bollards.

Each well will be secured with a locking well cap. In addition, a durable, weatherproof, rustproof, name plate that contains the following information will be affixed to the well vault:

- Company name and certification number of the driller who installed the well
- Date the well was completed
- Total depth (feet bTOC)
- Casing depth (feet bTOC)
- Screen interval (feet bTOC)
- Well identification

## Well Development

The wells will be developed by the well driller using a one or more of the following techniques:

- Airlift
- Surge block and well pump

The wells will be developed until the water produced is clear and free of sediment.

## A7 Certification

The following laboratory will be used for this project:

### Commercial Lab(s)

**Full Name of the Laboratory:** ESC Lab Sciences

**Name of Lab Director:** Eric Johnson

**SCDHEC Certification Number:** 84004002

Please note: SCDHEC may require that the contractor submit some or all of the Laboratory's SOPs as part of this QAPP.

## A8 Documents and Records

Personnel will receive the most current version of the QAPP Contractor Addendum via:

(Check all that apply)

☒ US Mail   ☐ Courier   ☒ Hand delivered

Other (please specify): \_\_\_\_\_

**Table 2A*****Record Identification, Storage, and Disposal***

<b>Record</b>	<b>Produced By</b>	<b>Hardcopy/ Electronic</b>	<b>Storage Location For how long?</b>	<b>Archival</b>
Monitoring Report	CH2M	Hardcopy and electronic copies to be provided to SCDHEC	Five years from date of report	Electronic copy is stored on CH2M and PLANTATION network

## Section B Measurement/Data Acquisition

---

### B1 Sampling Process/Experimental Design

**Table 3A**  
*Sampling Activities*

Task	Start Date	End Date	Comments
QAPP revision preparation and submittal	February 17, 2017	March 6, 2017	
QAPP approval		March 17, 2017	
Monitoring well and bedrock sparging well installation and development	March 6, 2017	June 30, 2017	
Surface water sampling and analysis	March 27, 2017	December 31, 2017	
Groundwater Sampling and analysis	March 13, 2017	March 31, 2017	
Surveying	March 27, 2017	June 30, 2017	

---

Note: This schedule assumes regulatory approval by March 6, 2017

## B2 Sampling Methods

Please note: The contractor must follow sampling protocols as given in the UST QAPP.

Estimate the number of samples of each matrix that are expected to be collected:

Matrix	Number of Samples (per event)
Groundwater from monitoring wells	26
From surface water	16
Duplicate samples	3
Field blanks	5
Trip blanks	6
Total number of samples	56

The samples will be (check all that apply): ☒ Grab ☐ Homogenized ☒ Split

- Sample collection will be performed in accordance with the media specific requirements and techniques outlined in the SCDHEC UST Division Programmatic QAPP (May 2015).
- HydraSleeve™ sampling techniques will be used to collect groundwater samples from the monitoring wells for laboratory analysis. If there is not a sufficient water column in a well to fully submerge the HydraSleeve™ then low-flow purging and sampling techniques will be used to collect the groundwater samples, as described below.
- Low flow purging techniques will be used to collect groundwater samples from the monitoring wells for laboratory analysis, when HydraSleeve™ sampling techniques are not feasible. During purging and sampling drawdown will be no greater than 4-inches, and the tubing will be placed as close to the top of the water column as possible. Groundwater samples will be collected from the monitoring wells using low-flow purging and sampling techniques no earlier than seven days after well development to ensure that the aquifer is fully recovered,
- The surface water samples will be collected by dipping the sample bottles into the creek at each sampling station to fill the bottles. Sampling will begin at the most downstream location and proceed to the most upstream location to eliminate the effects of streambed disturbance on sample integrity.

If homogenized or split are checked please indicate how will it be done and the equipment needed.

- Duplicate samples of groundwater will be collected by dividing the bailer volumes or pumped water volumes (if low-flow sampling techniques used) into separate container sets.

If decontamination procedures differ from Appendix H, please provide details.

- Decontamination procedures will be performed in accordance with the procedures described in Appendix H.

Identify any equipment and support facilities needed. This may include such things as Fed-ex® to ship the samples, a Geoprobe®, field analysis done by another contractor (who must be certified), or electricity to run sampling equipment.

- CH2M field staff will transport samples directly to the shipping carrier (i.e., FedEx®) following standard chain-of-custody (CoC) procedures.

Address the actions to be taken when problems occur in the field, and the person responsible for taking corrective action and how the corrective action will be documented.

**Table 4A**  
*Field Corrective Action*

<b>Failure</b>	<b>Response</b>	<b>Documentation</b>	<b>Individual Responsible</b>
PID does not calibrate or malfunctions	Re-calibrate. Follow trouble-shooting guide in manual and contact rental company. If unable to calibrate and/or instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel
Groundwater multi-meter (pH, temperature, conductivity, redox)	Re-calibrate. Follow trouble-shooting guide in manual and contact rental company. If unable to calibrate and/or instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel
Interface Probe does not function properly	Following trouble-shooting guide in manual and contact rental company. If instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel
All remaining equipment	Re-calibrate. Follow trouble-shooting guide in manual and contact rental company. If unable to calibrate and/or instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel

## B3 Sample Handling and Custody

1. How will the samples get from the Site to the Lab to ensure holding requirements are met?
  - FedEx® or other overnight courier. Additionally, field staff may hand deliver samples to laboratory.
2. If sample preservation procedures differ from the UST Programmatic QAPP, please provide details.
  - No deviation from UST Programmatic QAPP.
3. If chain of custody procedures differ from the UST Programmatic QAPP, please provide details.
  - No deviation from UST Programmatic QAPP.

## B4 Analytical Methods

1. Identify the SOPs which will be used to analyze the samples, the method which the SOP references and the equipment or instrumentation that is needed:

**Table 5A**  
*Analytical SOPs and Referenced Methods*

Analytical SOPs and Referenced Methods		
Parameter	Method Referenced	Comments
<b>Soils</b>		
BTEX, naphthalene	EPA Method 8260B	
<b>Groundwater</b>		
BTEX	EPA Method 8260B	
Naphthalene		
MTBE		
1,2-DCA		
<b>Surface Water</b>		
BTEX, naphthalene	EPA Method 8260B	

\*This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.

2. Provide SOPs for the Kerr Method or the Ferrous Iron Method if these are parameters for this study. This can be attached or written here. If attached please note that it is an attachment and where it is located (if applicable).
  - Not applicable.

## B5 Quality Control Requirements:

All QC will follow the requirements laid out in Section B5 of the UST Programmatic QAPP. If procedures for QC differ from the UST Programmatic QAPP, please provide details.

## B6 Field Instrument and Equipment Testing, Inspection and Maintenance

1. Identify all field equipment needing periodic maintenance, the schedule for this, and the person responsible.

**Table 6A*****Instrument and Equipment Maintenance***

<b>Instrument</b>	<b>Serial Number</b>	<b>Type of Maintenance</b>	<b>Frequency</b>	<b>Person responsible</b>
YSI Multi-meter or equivalent	TBD as equipment is rented	Ensure instrument is able to accurately correlate with calibration standards	Monthly	Vendor Equipment Manager (i.e., Pine Environmental)
Oil Water Interface Probe	TBD as equipment is rented	Ensure instrument is able to accurately correlate with calibration standards	Monthly	Vendor Equipment Manager (i.e., Pine Environmental)
PID	TBD as equipment is rented	Ensure instrument is able to accurately correlate with calibration standards	Monthly	Vendor Equipment Manager (i.e., Pine Environmental)

## B7 Instrument Calibration and Frequency

1. Identify equipment, tools, and instruments for field or lab work that should be calibrated and the frequency.
2. Describe how the calibrations should be performed and documented, indicating test criteria and standards or certified equipment.
3. Identify how deficiencies should be resolved and documented. Identify the person responsible for corrective action.

**Table 7A*****Instrument Calibration Criteria and Corrective Action***

<b>Instrument</b>	<b>Serial Number</b>	<b>Calibration Procedure</b>	<b>Frequency of Calibration</b>	<b>Acceptance Criteria</b>	<b>Corrective Action (CA)</b>	<b>Person Responsible for CA</b>
YSI Multi-meter or equivalent	TBD as equipment is rented	Procedures adheres to standards outlined in manual for instrument	Daily	Within 0.01 of calibration standard	Re-calibrate; then replace probes or instrument	Field personnel
Oil Water Interface Probe	TBD as equipment is rented	Procedures adheres to standards outlined in manual for instrument	Manufacturer calibration	Manufacturer calibration – accurate to 0.01-feet	Return to vendor than obtain replacement	Field personnel
PID	TBD as equipment is rented	Procedures adheres to standards outlined in manual for instrument	TBD per manufacturer recommendations	0.5 ppm	Re-calibrate; then replace lamp, filters or instrument	Field personnel

\* This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP.

## B8 Inspection/Acceptance Requirements for Supplies and Consumables

1. If procedures for storage, handling or transport of supplies/consumables differ from the UST Programmatic QAPP, please provide details.
  - No deviation from SCDHEC UST Programmatic QAPP.

## B9 Data Acquisition Requirements (Non-Direct Measurements)

1. Identify data sources, for example, computer databases or literature files, or models that should be accessed or used.
2. Describe the intended use of this information and the rationale for their selection, i.e.,
3. Provide its relevance to the project.
4. Indicate the justification criteria for use of these data sources and/or models.

**Table 8A**  
*Non-Direct Measurements*

Data Source	Used for	Relevance	Justification for use in this project	Comments
Tax Map and utility maps	Determine/verify property ownership and utility locations	Used to ensure contact property owners and obtain access to property – determine locations and depths of utilities	Site access and evaluate depth of utility with respect to hydrocarbons	
USGS and SCDHEC Databases	Obtain geologic information and water resource information	Understanding of site stratigraphy and well records	Evaluate local stratigraphy beneath site and obtain well construction details	

5. Identify key resources/support facilities needed.
  - Not applicable.



## B10 Data Management

1. Describe the data management scheme from field to final use and storage.
  - The samples collected will be recorded on the laboratory Chain-of-Custody (CoC) form as well as documented in the field logbook by the sample collection team. The samples and CoC will be relinquished to the laboratory following standard CoC methodology. Following analysis, the laboratory will perform internal data validation. The laboratory will issue a written report and submit an electronic copy to via email. The electronic copy will be stored on CH2M's computer network in a file dedicated to the Lewis Drive project.
2. How does the lab and field staff ensure that no unauthorized changes are made to the chain of custody, sampling notebooks, laboratory notebooks and computer records?
  - Documents will be noted with written or electronic signature and date/time stamp. A review of all written and electronic documents by a project team member who has been assigned this task by a project leadership member to ensure integrity of the project documents.
3. CoC forms, sampling notebooks and sample collection summary sheets will be completed in the field with indelible ink. Any changes to the CoC that is not marked through and initialed will be flagged by the laboratory and an inquiry will be made. The procedures for laboratory record keeping are included in the laboratory QAM which can be provided upon request.
  - Paper copies generated during field activities will be scanned and stored electronically on CH2M's networks that are backed up each day on to an off-site tape drive. All paper copies will be maintained in project files in a secure building with 24-hour, restricted access.
4. How does the lab ensure that there are no errors in samples records including times when sample information is compiled, data calculated and/or transmitted?
  - When the laboratory receives samples for analysis, a "Review of Sample Login" report is created by the sample custodian and is reviewed by the laboratory project manager (PM) for errors. If problems are encountered, the laboratory PM contacts the CH2M PM and a corrective action is agreed upon and then corrected by the laboratory PM.
5. How will the data be archived once the report is produced? How can it be retrieved? (This applies to both electronic and hard copies).
  - The laboratory will store readily available electronic copies online for two years through the laboratory's "My ESC" web link. After two years, the reports will be archived electronically on-site or off-site for an additional eight years. The archived reports can be retrieved by the laboratory through an IT request. Each project is given a unique number and is entered into an archive log to allow for retrieval. Hard copies are scanned in .pdf format and are stored electronically on the CH2M server with the same unique number as the hard copy.
  - CH2M assigns a unique project number to each project which is stored in sequential order by project number at the branch and are stored at a secure, restricted access location for a minimum of 5-years.

# Section C Assessment and Oversight

---

## C1 Assessment and Response Actions

1. The Contractor is supposed to observe field personnel daily during sampling activities to ensure samples are collected and handled properly and report problems to DHEC within 24 hours. Please state who is responsible for doing this, what observations will be made, and how those observations will be made. Will this person have the authority to stop work if severe problems are seen?
  - All CH2M employees working on this project will verify that the samples are collected and handled properly. Additionally, all CH2M employees working on this project have the authority to stop work, report the problem and effect a correction that is agreed upon by the CH2M PM.
2. The SCDHEC UST QAPP states that the Laboratory will receive an Offsite Technical System Audit. For this project, what assessments will be done by the Contractor on the Commercial Lab(s) that are being used—other than their certification audit? When or how often are these done? Who will the results be given to and who has the ability to stop work if problems are severe?
  - The laboratory participates in semi-annual proficiency testing through an approved vendor, Phenova. The results of this proficiency testing are provided to the SCDHEC Office of Environmental Laboratory Certification. The laboratory is accredited by the SCDHEC Office of Environmental Laboratory Certification, and performs internal audits annually for each department in compliance with the laboratory's quality program.

## C2 Reports to Management

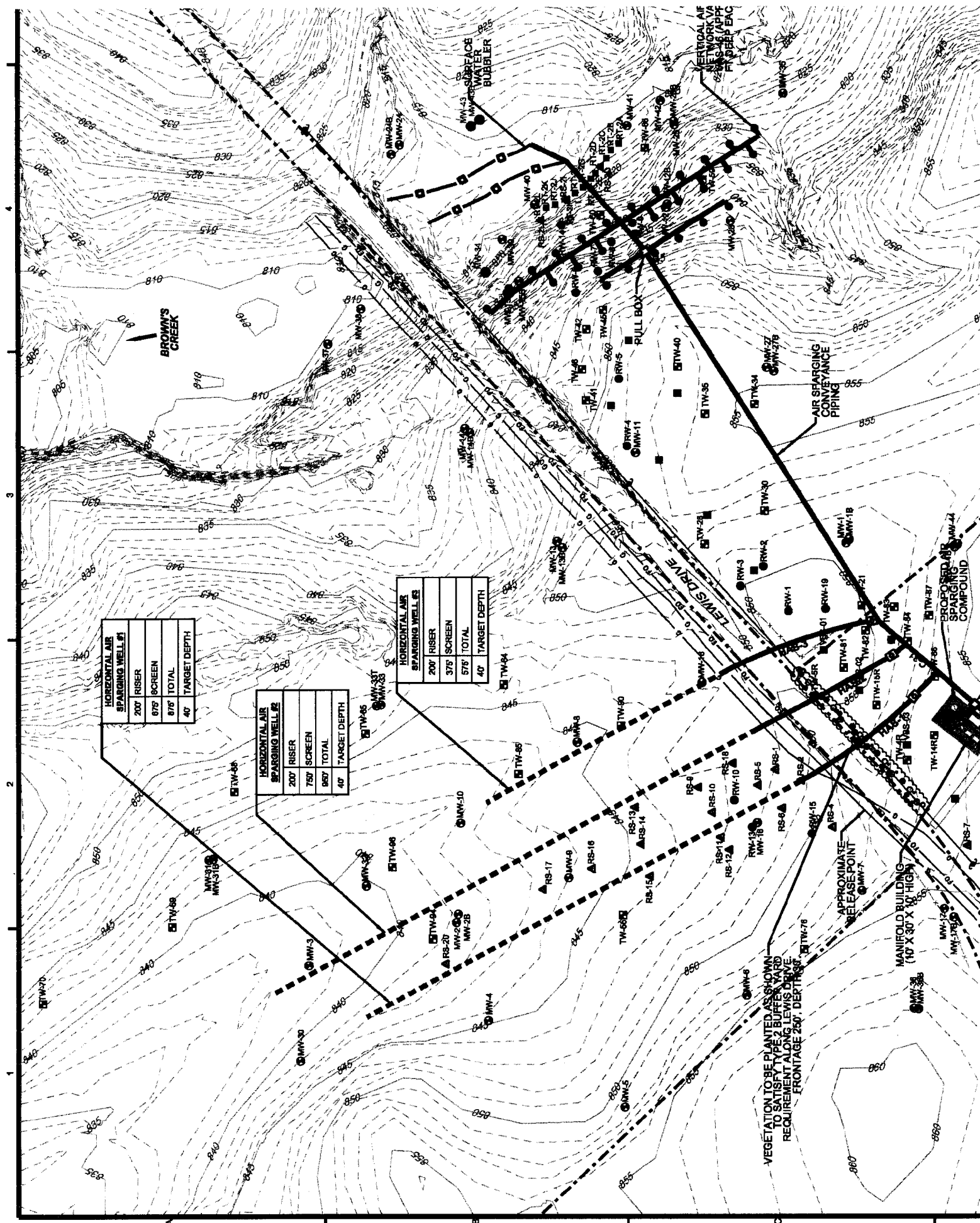
See the SCDHEC UST Programmatic QAPP (UST Master QAPP).

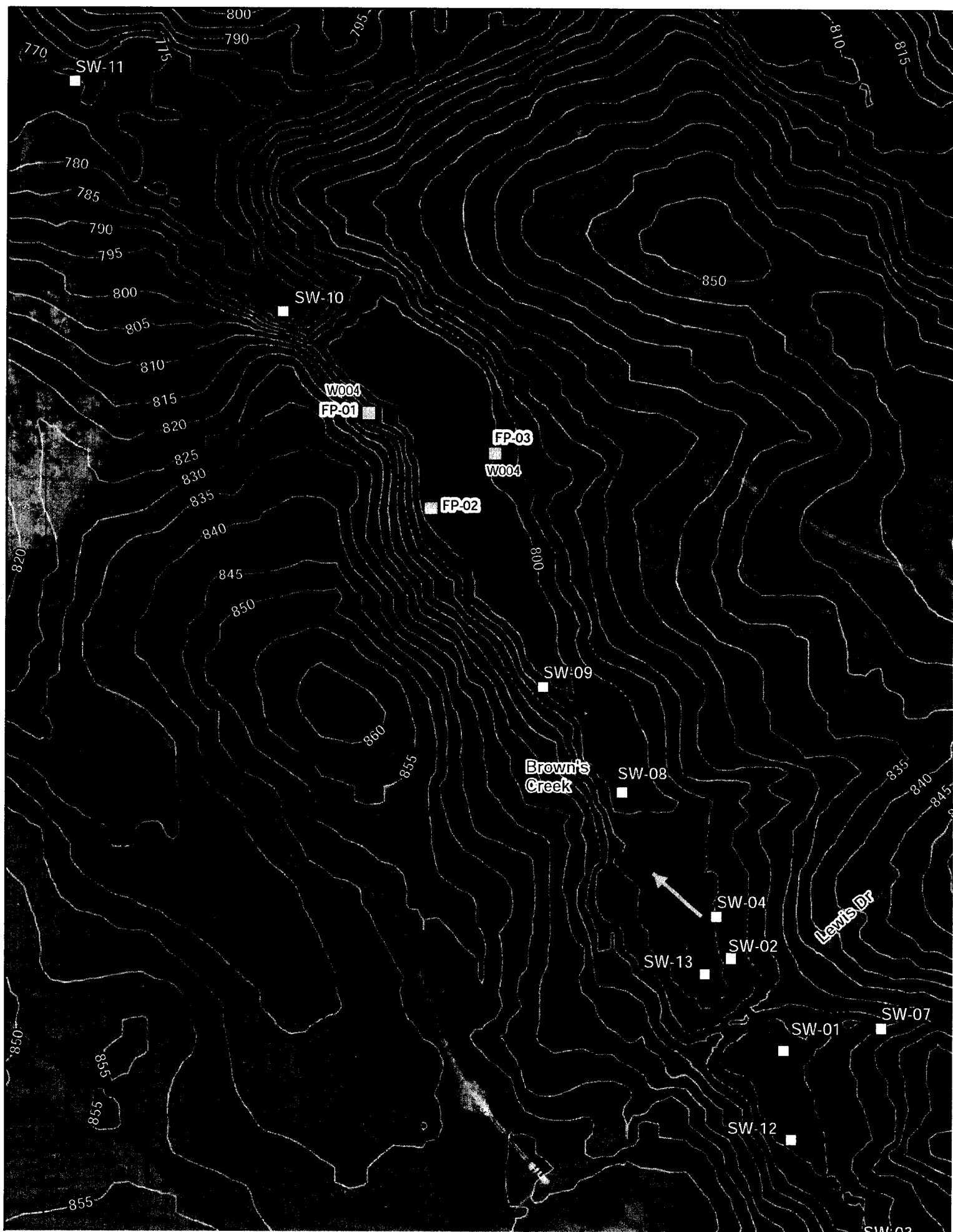
## **Section D Data Validation and Usability**

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See the SCDHEC UST Programmatic QAPP (UST Master QAPP).







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#8  
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January 20, 2017

*Delivered via FedEx*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, SC 29201

Subject: Surface Water Protection Plan Addendum  
Lewis Drive Release  
Plantation Pipe Line Company  
Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared this addendum to the Surface Water Protection Plan for the Lewis Drive Release Site dated April 19, 2016. **Figures 1 and 2** show the site features in relation to the release point. The pipeline release resulted in impacts to soil, groundwater, and surface water quality.

The primary component of this corrective action is to install reactive core mat (RCM) in layers over two seeps identified in the vicinity of Brown's Creek, in the eastern portion of the site. Seep 1 measures 30 feet long by 12 feet wide and is located approximately 20 feet up the slope from Brown's Creek. A product recovery trench and a berm stand between Seep 1 and the creek. Seep 2 measures 12 feet by 12 feet and is located adjacent to Brown's Creek. The seep locations are indicated on **Figure 2**. The total footprint of the proposed mitigation effort is approximately 500 square feet (0.01 acres), and the total length that is parallel to Brown's Creek is approximately 42 linear feet.

The RCM contains granular activated carbon and is designed to passively control embankment seepage. The carbon is integrated in the RCM between sheets of geotextile that are needle-punched together to keep the carbon contained, regardless of how the material is cut to shape for the application. A cut sheet for the RCM is provided. The conceptual design includes four layers of RCM interbedded with 3-inch layers of sand to be installed as indicated on **Figure 3**. The matting for Seep 1 will also be installed over a 6-inch bed of #57 stone. An erosion control blanket will be installed at the surface for both seeps. The RCM is to be overlaid on the existing ground with no earthwork cut. The edges of the system will be tapered to tie into existing grade. The RCM and erosion control mat will be anchored with pins according to the manufacturer's recommendation. Vegetation will not need to be removed to apply the RCM to the seeps.

This activity will be implemented under the U.S. Army Corps of Engineers Nationwide Permit 3, part (c), which authorizes the use of temporary fill for site maintenance. Per the requirement of the permit, the proposed temporary measure will consist of materials that are placed in a manner that will not be eroded by expected high flows. After concentrations in Brown's Creek have abated, indicating that the seep is no longer impacting the creek, this temporary fill will be removed in its entirety and the affected areas will be



regraded to pre-construction elevations and revegetated. The proposed temporary activities covered under part (c) of Nationwide Permit 3 do not require pre-construction notification.

If you have any further questions or concerns, please contact me at 919-760-1777 or Mr. Jerry Aycock with Plantation at 770-751-4165.

Regards,  
CH2M HILL Engineers, Inc.



William M. Waldron, P.E.  
Senior Project Manager

Enclosures

- Figure 1 - Site Location Map – USGS 7.5-minute Topographic Quadrangle
- Figure 2 - Product Thickness and Seep Location Map with Aerial Site Image
- Figure 3 – Seep Remediation with Reactive Core Mat
- Attachment 1 - Cut Sheet for Reactive Core Mat

Cc (via e-mail):

Jerry Aycock – Plantation Pipe Line Company, email: [Jerry\\_Aycock@kindermorgan.com](mailto:Jerry_Aycock@kindermorgan.com)  
Mary Clair Lyons, Esq. – Plantation Pipe Line Company, email: [Mary\\_Lyons@kindermorgan.com](mailto:Mary_Lyons@kindermorgan.com)  
Richard Morton, Esq. – Womble Carlyle Sandridge & Rice, PLLC, email: [rmorton@wcsr.com](mailto:rmorton@wcsr.com)  
File

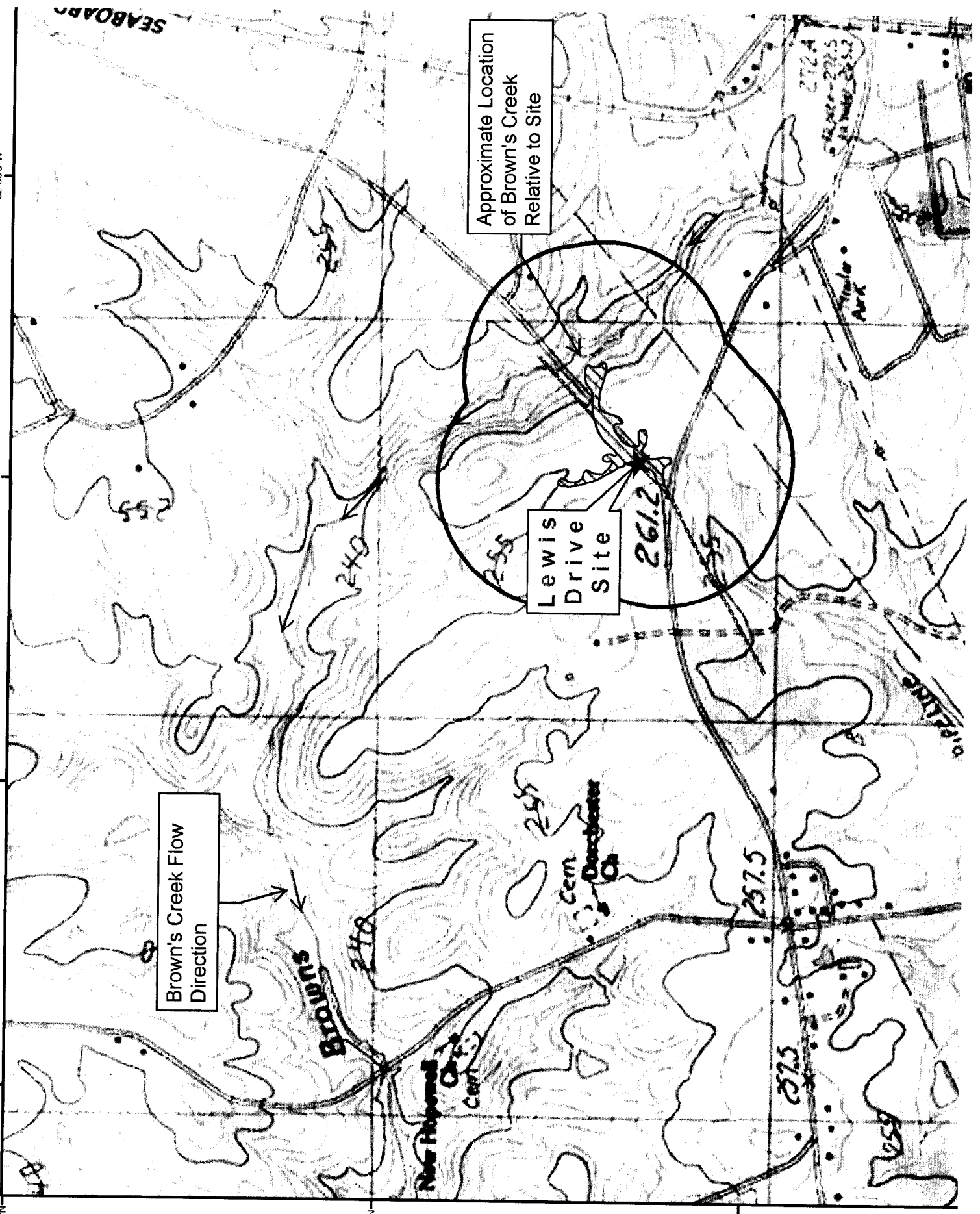
## Figures

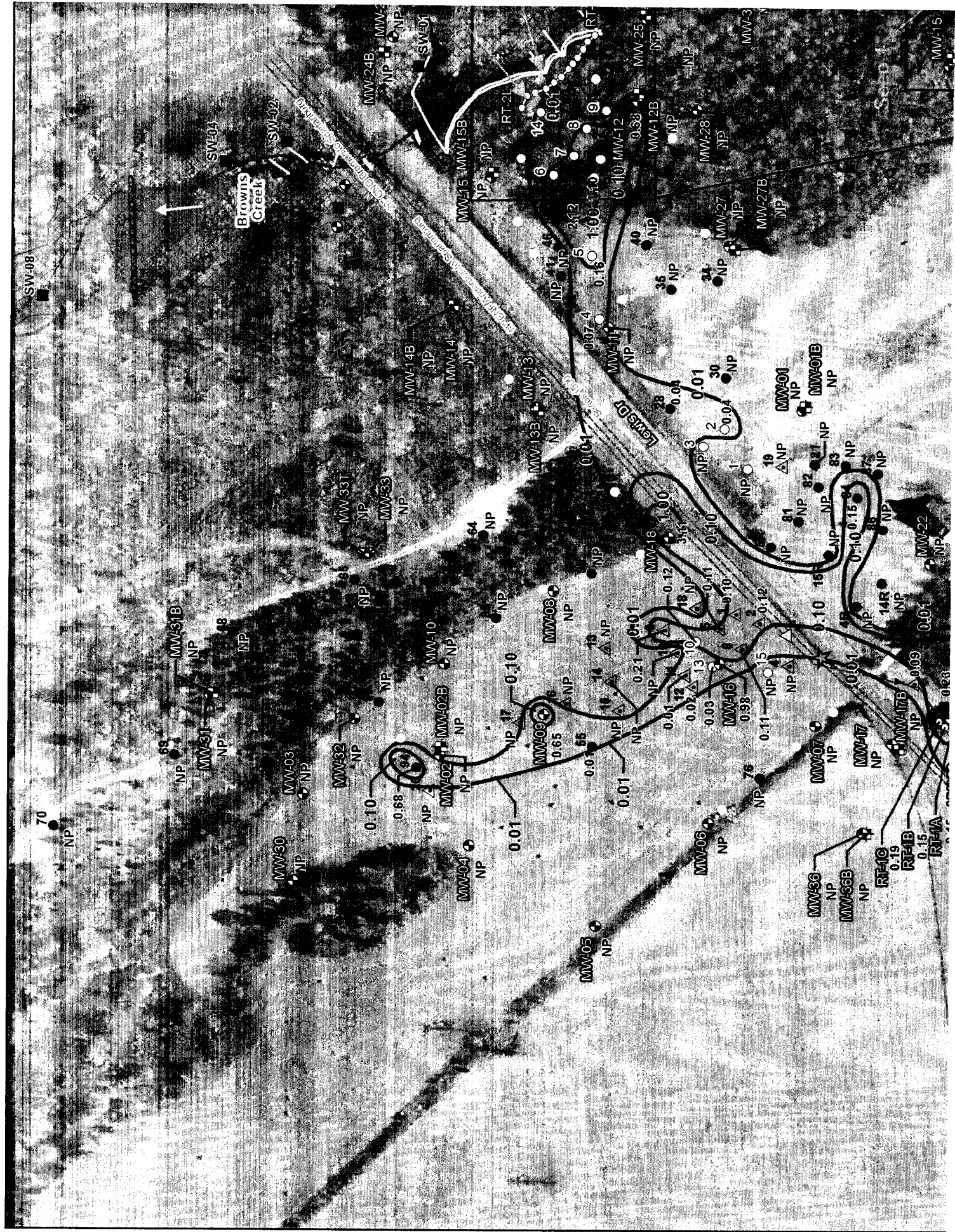
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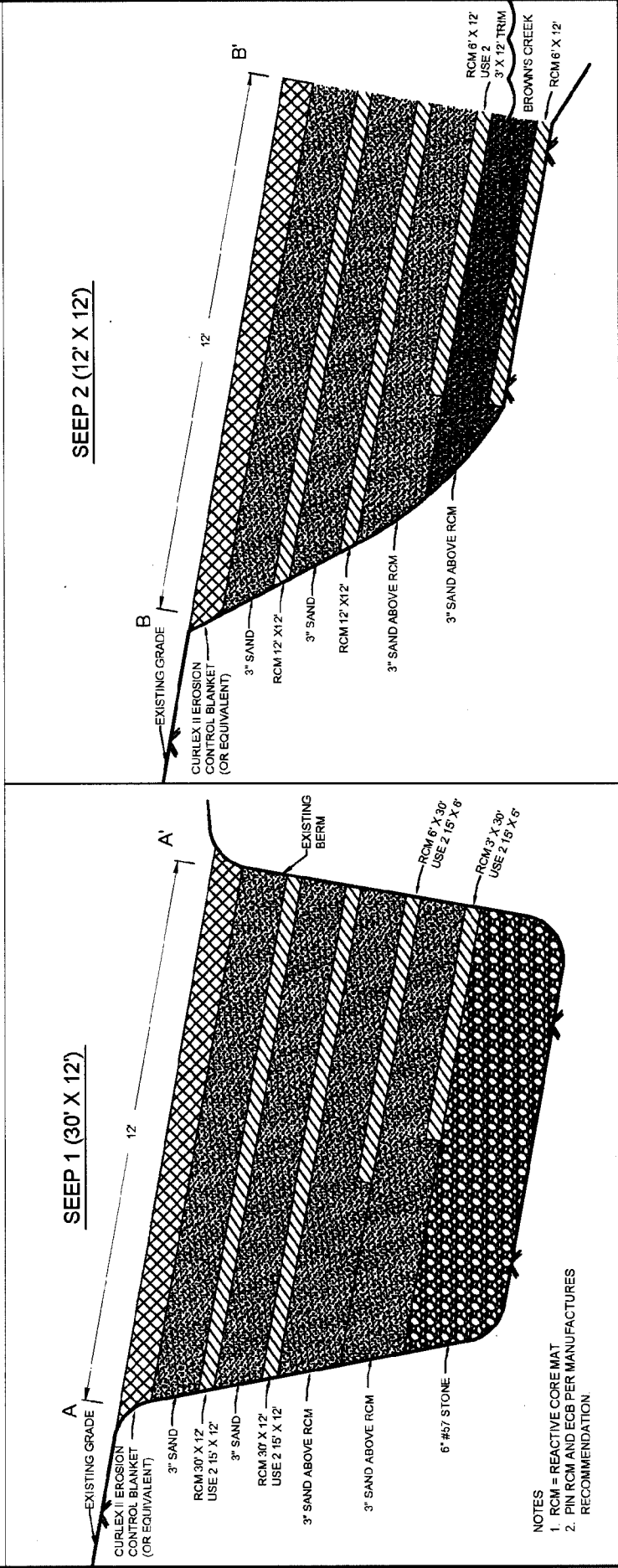
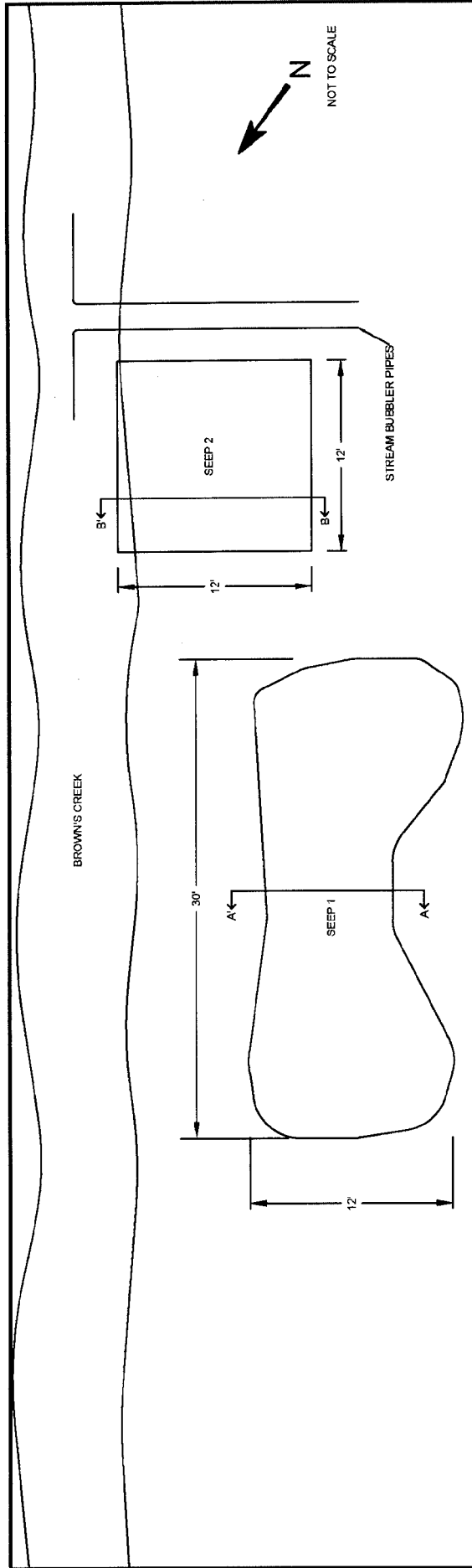
Brown's Creek Flow Direction

Approximate Location of Brown's Creek Relative to Site

Lewis Drive Site







NOTES  
 1. RCM = REACTIVE CORE MAT  
 2. PIN RCM AND ECB PER MANUFACTURERS RECOMMENDATION

PROJECT NUMBER	60517198			FIGURE 3			LEWIS DRIVE			SEEP REMEDIATION WITH REACTIVE CORE MAT			CONCEPTUAL DESIGN - NOT FOR CONSTRUCTION		
FIGURE NUMBER				AECOM			Tallahassee, Florida								

Cut Sheet for Reactive Core Mat

# Attachment 1

# REACTIVE CORE MAT™

## WITH GRANULAR ACTIVATED CARBON CORE (GAC)

### DESCRIPTION

REACTIVE CORE MAT™ GAC is an aqueous permeable composite of geotextiles and activated carbon that reliably adsorbs organics from water.

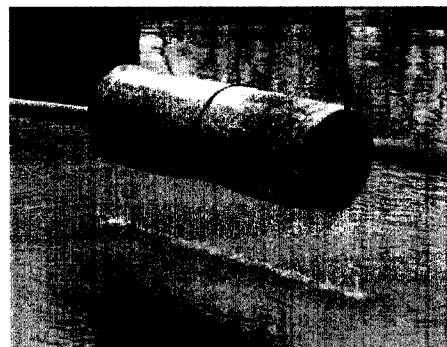
### APPLICATION

REACTIVE CORE MAT™ GAC is designed for use in the following applications:

- In situ subaqueous cap for contaminated sediments or post-dredge residual sediments
- Embankment seepage control
- Groundwater remediation

### BENEFITS

- REACTIVE CORE MAT™ GAC provides a reactive material that treats contaminants which are carried by advective or diffusive flow.
- Reactive cap allows for thinner cap thickness than a traditional sand cap.
- Geotextiles provide stability and physical isolation of contaminants.



REACTIVE CORE MAT™ GAC is designed to provide a simple method of placing active materials into subaqueous sediment caps.

### TESTING DATA

PHYSICAL PROPERTIES		
PROPERTY	TEST METHOD	RESULT
<b>ACTIVATED CARBON<sup>1</sup></b>		
Iodine Number	AWWA B604 or ASTM D4607	Min. 750 mg/g
<b>FINISHED RCM PRODUCT</b>		
Activated Carbon Mass per Area	Modified ASTM D5993	0.4 lb/ft <sup>2</sup>
Grab Strength <sup>2</sup>	ASTM D4632	90 lb. MARV
Permeability <sup>3</sup>	ASTM D 4491	1 x 10 <sup>-2</sup> cm/s min

#### NOTES:

<sup>1</sup> Activated carbon properties performed prior to incorporation into the RCM

<sup>2</sup> All tensile testing in machine direction

<sup>3</sup> Permittivity at constant head of 2 inches and converted to hydraulic conductivity using Darcy's Law and RCM thickness per ASTM D5199 for geotextiles

### PACKAGING

REACTIVE CORE MAT™ GAC is available in the following packaging option:

- 15' by 100' rolls, packaged on 4" PVC core tubes wrapped in polyethylene plastic

North America: 847.851.1800 | 800.527.9948 | [www.CETCO.com](http://www.CETCO.com)

© 2014 CETCO. IMPORTANT: The information contained herein supersedes all previous printed versions, and is believed to be accurate and reliable. For the most up-to-date information, please visit [www.CETCO.com](http://www.CETCO.com). CETCO accepts no responsibility for the results obtained through application of this product. CETCO reserves the right to update information without notice.

UPDATED: NOVEMBER 2013

TDS\_RCM GAC\_AM\_EN\_201311\_v1

**CETCO®**  
OUR STANDARDS. YOUR PEACE OF MIND.  
A Minerals Technologies Company

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February 6, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, SC 29201

Subject: Request for Well Permit to Install Additional Monitoring Well (MW-34)  
Lewis Drive Release  
Plantation Pipe Line Company  
Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared this plan to request a well permit to install one new groundwater monitoring well at the Lewis Drive Site in Belton, Anderson County, South Carolina (Site ID #18693). The proposed monitoring well installation is in response to actions agreed to in a conversation with South Carolina Department of Health and Environmental Control (SCDHEC) on January 17, 2017 at the Lewis Drive Site. Plantation requests to conduct the work in early February 2017.

## Proposed Scope of Work

The following activities will be performed:

- Install one groundwater monitoring well (MW-34) screened in a shallow residuum aquifer, as shown on **Figure 1**. The monitoring well will be constructed in accordance with South Carolina Well Standards R.61-71. Once completed, the locations and elevations of this monitoring well will be determined by a surveyor licensed in the state of South Carolina.

Well installation tasks are described in more detail in the following sections.

## Well Installation and Development

### Well

During the January 17, 2017 site visit with SCDHEC and Plantation representatives, it was determined that installing a well at this location was not feasible using a mechanical drill rig, due to steep slopes and ditches and unstable ground surface (super saturated soils). Plantation proposes the following procedures so the well can be installed and constructed in accordance with SCDHEC Well Standards

R.61-71, the Final SA Work Plan and QAPP Addendum (CH2M, 2015a), and Revised Assessment Plan/QAPP (CH2M, 2015b):

- Well will be installed using a hand auger due to site access issues.
- The borehole will be advanced to a target depth of approximately 5 feet using a hand auger to create a nominal 4 inch diameter borehole. During borehole advancement, soil samples will be field screened for VOCs and characterized for lithology using the soil cuttings collected from the auger bucket.
- The well will be constructed using 2.5-feet of schedule 40 PVC 2-inch prepacked internal diameter (ID) by 2.8-inch OD well screen and a variable amount of 2-inch ID Schedule 40 PVC riser. The screen will have a slot size of 0.010-inches. Additional sand pack shall be placed in the annular space between the borehole and prepacked well screen and shall be brought to a height 0.5-foot above the top of the well screen. A bentonite seal with a minimum thickness of 12-inches shall be placed above the sand pack and shall be hydrated. The seal shall be allowed to hydrate for a minimum of 1-hour before placing grout above the seal. A grout seal of at least 1-foot length, containing Portland cement mixed with 3 to 5 percent bentonite shall be placed above the grout seal and shall be brought to within 1-foot of ground surface.

## Well Surface Completion

The well will be finished as an aboveground completion because it will be installed in areas not subject to vehicle/equipment traffic and because of its proximity to the stream where a flush mount well would be difficult to find and potentially subject to flooding. The aboveground completion will be constructed above grade using a 6-inch diameter, approximately 3-feet high, locking anodized aluminum well vault set in a cylindrical concrete pad. The concrete pad will extend 1 ft above and 1 ft below the ground surface to ensure a better surface seal and protect the well from flooding. See attached well construction diagram for details.

The well will be capped with a locking well cap. In addition, a name plate that contains the following information will be affixed to the well vault:

- Company name and certification number of the driller who installed the well
- Date the well was completed
- Total depth (feet)
- Casing depth (feet)
- Screen interval (feet)
- Well identification

## Well Development

The well will be developed by the well driller using one or more of the following techniques:

- Airlift
- Surge block and well pump

The well will be developed until the water produced is clear and free of sediment.

If you have any further questions or concerns, please contact me at 919-760-1777 or Mr. Jerry Aycock with Plantation at 770-751-4165.

Regards,

CH2M HILL Engineers, Inc.



William M. Waldron, P.E.  
Senior Project Manager

Attachments

- Figure 1 - Proposed Monitoring Well Location
- Proposed Well Construction Diagram

Cc (via e-mail):

Jerry Aycock, Plantation, Jerry\_Aycock@kindermorgan.com

Mary Clair Lyons, Esq., Plantation, Mary\_Lyons@kindermorgan.com

Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC, rmorton@wcsr.com

File



# ch2m

PROJECT NUMBER

684910

WELL NUMBER

MW-34

## PROPOSED WELL COMPLETION DIA

PROJECT : Lewis Drive

LOCATION : Belton, SC

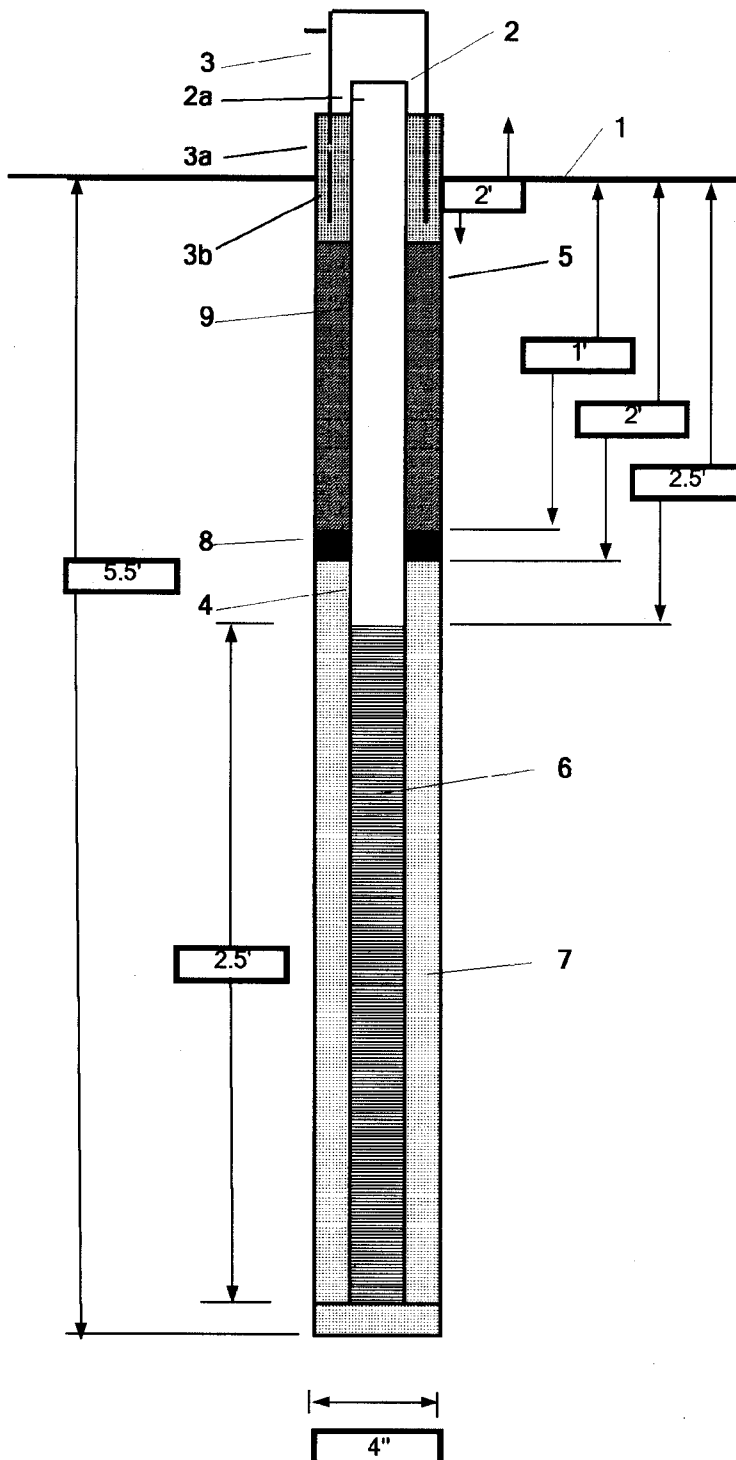
DRILLING CONTRACTOR : AE Drilling

DRILLING METHOD AND EQUIPMENT USED : Hand Auger

WATER LEVELS : ft. bgs

INSTALLATION DATE:

LOGGER:



- 1- Ground elevation at well \_\_\_\_\_
- 2- Top of casing elevation \_\_\_\_\_
- a) vent hole elevation? NA \_\_\_\_\_
- 3- Wellhead protection cover type Anodized alumin \_\_\_\_\_
- a) weep hole? NA \_\_\_\_\_
- b) concrete pad dimensions 12" diameter x 24" le \_\_\_\_\_
- 4- Dia./type of well casing 2" OD SCH 40 PVC \_\_\_\_\_
- 5- Dia./type of surface casing NA \_\_\_\_\_
- 6- Type/slot size of screen 2" ID Sch 40 factory \_\_\_\_\_
- slot x 2.8" OD prepac \_\_\_\_\_
- 7- Type screen filter GP #1 filter sand aro \_\_\_\_\_
- a) Quantity used 1 bag = 0 \_\_\_\_\_
- 8- Type of seal Baroid 3/8" bentonite \_\_\_\_\_
- a) Quantity used \_\_\_\_\_
- 9- Grout \_\_\_\_\_
- a) Grout mix used Portland Type I/II Ce \_\_\_\_\_
- b) Method of placement powder mixed at 94 l \_\_\_\_\_
- Tremie and top-off \_\_\_\_\_
- c) Vol. of surface casing grout NA \_\_\_\_\_
- d) Vol. of well casing grout \_\_\_\_\_
- Development method \_\_\_\_\_
- Development time \_\_\_\_\_
- Estimated purge volume \_\_\_\_\_
- Comments \_\_\_\_\_

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February 10, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control (SCDHEC)  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, SC 29201

Subject: *Startup Plan for Surface Water Protection Measures*  
**Lewis Drive Remediation**  
Plantation Pipe Line Company  
Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared this plan to document the proposed injection and monitoring sequence to safely and effectively initiate operation of the recently constructed biosparging system at the site. The proposed initial flow rates are biosparging rates to limit volatilization of hydrocarbons. Air injection is planned to be gradually increased over time to optimize system performance. Monitoring will be conducted to evaluate system performance and will take various forms, including visual observations, field measurements, and analytical results.

## Air Monitoring

As detailed in the Draft Air Monitoring Plan that was provided February 6, 2017, two fixed air monitoring stations will be established at Brown's Creek and Cupboard Creek in order to monitor for and identify indications of potential vapor problems that may occur due to operation of the biosparging system. The final Air Monitoring Plan is attached to this correspondence to be comprehensive.

## Water Table Monitoring

Potential mounding of the water table will be monitored, in part, by four continuous water level data loggers (In Situ Rugged TROLL 100) installed in MW-12 and MW-15 near Brown's Creek, at MW-20 near Cupboard Creek, and MW-2 in the hayfield (the one in MW-2 will be used when operation of the horizontal biosparge wells is approved). Baseline gauging using an oil-water interface probe will be performed before startup (to establish baseline conditions). Then gauging will be performed daily during Week 1 of the injection and weekly for the remainder of Month 1, as detailed in **Table 1** below. Dissolved oxygen (DO) will be measured at the end of Month 1 with an optical DO probe.

**Table 1. Water Table Monitoring Schedule**  
*Lewis Drive Remediation Site*

Location	Baseline	Twice/Day on Day 1	Daily for Week 1	Weekly for Month 1	End of Month 1
<i>Cupboard Creek</i>					
MW-19	WL	WL	WL	WL	WL, DO
MW-20*	WL	WL	WL	WL	WL, DO
MW-29	WL	WL	WL	WL	WL, DO
TW-67	WL	WL	WL	WL	WL, DO
TW-73	WL	WL	WL	WL	WL, DO
<i>Brown's Creek</i>					
MW-12*	WL	WL	WL	WL	WL, DO
MW-12B	WL	--	--	--	WL, DO
MW-15*	WL	WL	WL	WL	WL, DO
MW-15B	WL	--	--	--	WL, DO
MW-25	WL	WL	WL	WL	WL, DO
MW-25B	WL	--	--	--	WL, DO
MW-28	WL	WL	WL	WL	WL, DO
MW-35	WL	WL	WL	WL	WL, DO
MW-39	WL	WL	WL	WL	WL, DO
MW-41	WL	WL	WL	WL	WL, DO
TW-59	WL	WL	WL	WL	WL, DO
TW-60	WL	WL	WL	WL	WL, DO
TW-66	WL	WL	WL	WL	WL, DO

**Notes:**

-- indicates that this does not apply.

WL = water level

DO = dissolved oxygen

\*Monitoring wells with dedicated loggers (TROLL 100)

## Analytical Monitoring of Groundwater

Groundwater samples will be collected weekly during startup from the 24 monitoring wells listed in **Table 2** below. These locations are also depicted on **Figure 1**. Samples will be collected in accordance with the revised Quality Assurance Project Plan (QAPP) submitted to SCDHEC on April 8, 2015 and approved May 6, 2015. Pending approval from SCDHEC, samples may be collected using no-purge HydraSleeve samplers. Samples will be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary butyl ether (MTBE), 1,2-dichloroethane (1,2-DCA), and naphthalene by Environmental Protection Agency (EPA) Methods 8011 and 8260B.



**Table 2. Analytical Groundwater Monitoring Schedule**  
*Lewis Drive Remediation Site*

Brown's Creek Monitoring Wells		Cupboard Creek monitoring wells	
MW-12	MW-34 (to be installed)	MW-19	MW-26
MW-12B	MW-35	MW-20	MW-26B
MW-15	MW-38	MW-21	MW-29
MW-15B	MW-39	MW-23	MW-45
MW-25	MW-40	MW-23B	MW-45B
MW-25B	MW-41		
MW-28	MW-42		

## Analytical Monitoring of Surface Water

Surface water samples will be collected from all surface water sampling locations at the site weekly during startup. Samples will be collected in accordance with the QAPP and analyzed for BTEX and naphthalene by EPA Method 8260B.

## Startup Sequence

The proposed sequence for startup operations is as follows:

### Week 1

- The sparging system operator-in-charge (OIC) will initiate one of the two Sullair compressors and open valves in manifold legs for the two stream bubblers and for the 45 vertical sparging wells. Low flow rates of 1 standard cubic foot per minute (scfm) per sparge well/surface water aerator have been selected to build up the assimilative capacity of the vadose zone and to minimize water table mounding and vapor generation. The stream aerators will run 24/7. A pulsing sequence in the vertical sparge well network of 6 hours per injection row will be used to treat from "outside-in", i.e., inject for 6 hours into the most downgradient injection row at Brown's Creek/Cupboard Creek, then inject for 6 hours into the next upgradient row, then inject for 6 hours into the most upgradient row, and then re-initiate the cycle.
- Surface water will be monitored daily for potential disturbances from aerators. If any sustained disturbance beyond bubbling of air (e.g., increased turbidity) is observed, the OIC will reduce the flow rate and should disturbances continue, ultimately cease injections.
- Ambient air monitoring will be performed daily with a handheld MultiRAE, in particular the areas around MW-19, MW-40, and MW-09, and also the City of Belton water branch line valve to the former residence at 112 Lewis Drive, per the previously submitted Corrective Action Plan (CAP) (September 2016).
- Product recovery will continue on a twice per week basis.
- Fixed air monitoring station data will be logged continually and downloaded twice per week. Fixed air monitoring station data will be evaluated per the attached Air Monitoring Plan.
- Daily water table monitoring will be performed as described above and detailed in **Table 1**.
- Data from TROLLs will be downloaded at the end of Week 1.

- Groundwater and surface water samples will be collected once in Week 1 as described above and detailed in Table 2.

## Week 2

- Starting week 2, the OIC of the system will increase flows from 1 to 2 scfm for each vertical sparging well and surface water aerator, maintaining the same pulsing schedule in the vertical sparge wells as before (assuming no adverse conditions were observed) and continuing to run the aerators 24/7.
- Surface water and ambient air monitoring will be performed daily as above. Fixed air monitoring station data will continue to be downloaded twice weekly.
- Water table monitoring will be performed once weekly as described above and detailed in Table 1.
- Data from TROLLs will be downloaded at the end of Week 2.
- Groundwater and surface water samples will be collected once in Week 1 as described above and detailed in Table 2.

## Week 3

- Week 3 will essentially be a repeat of Week 2. The injection flow rate in the vertical sparging wells and surface water aerators will increase to 3 scfm each, and CH2M will continue to monitor surface water, groundwater, ambient air, etc. as described for Weeks 1 and 2.

## Week 4

- Week 4 will be the same as previous weeks, with the addition of enhanced monitoring for influence from the system. The injection sequence will increase to 4 scfm for each vertical sparging well and surface water aerator, and CH2M will continue to monitor surface water, groundwater, ambient air, etc.
- In addition, the CAP requires monthly site visual checks for evidence of a petroleum sheen on surface waters, odors in the area, and/or distressed vegetation. Visual inspections will be conducted within the area of the site and specifically along the usual 3,000-foot section of Brown's Creek and 600-foot section of Cupboard Creek.
- Finally, after completion of the first month, staff will measure DO with an optical probe in select wells to assess the effects of sparging. These measurements will be conducted while the system remains operational to better assess the potential zone of influence.

# Reporting

Data transmittals consisting of lab reports, summary tables, and figures will be provided to SCDHEC on a weekly basis as soon as analytical data are received and evaluated.

If you have any further questions or concerns, please call me at 919-760-1777, Mr. Scott Powell/CH2M at 678-530-4457, or Mr. Jerry Aycock/Plantation at 770-751-4165.

Regards,  
CH2M HILL Engineers, Inc.

William M. Waldron, P.E.  
Senior Project Manager

Enclosures:

Figure 1 – Weekly Groundwater Sampling Locations During Startup  
Air Monitoring Plan

cc: Jerry Aycock, Plantation (Digital, Jerry\_Aycock@kindermorgan.com)  
Mary Clair Lyons, Esq., Plantation (Digital, Mary\_Lyons@kindermorgan.com)  
Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC (Digital, rmorton@wcsr.com)  
File

”

Figure



## Attachment – Air Monitoring Plan

## Air Monitoring Plan Lewis Drive Site, Belton, South Carolina

This Plan presents the Air Monitoring Plan for the Lewis Drive site (The Site) in Belton, South Carolina. The plan was prepared on behalf of Plantation Pipe Line Company (Plantation) by CH2M Engineers, Inc. (CH2M).

### BACKGROUND

On December 8, 2014 a gasoline release was discovered from Plantation's 26-inch product pipeline near Lewis Drive in Belton, South Carolina. Plantation performed initial response actions from December 8, 2014 through February 2, 2015. An Interim Corrective Action Plan (CAP) was submitted to SCDHEC on March 5, 2015 and a Site Assessment Report was submitted to DHEC on September 9, 2015. A site wide CAP was submitted to SCDHEC on September 1, 2016.

A biosparging remedial system was constructed at the Site to treat the gasoline release. System construction is nearly complete. System shakedown and startup is scheduled for February 2017.

### AIR MONITORING PLAN

This Air Monitoring Plan was prepared to monitor for and identify indications of vapor problems that are due to operation of the biosparging system. The plan goal is to show that startup and operation of the biosparging system is being performed in a manner that does not adversely affect nearby receptors by producing excessive vapors. Excessive vapors would be considered 5ppm VOCs on the perimeter of the site area or in the vicinity of any of the roads running through the site.

Monitoring for vapors generated by biosparging will be performed through use of Fixed Air Monitoring Stations and mobile Ambient Air Monitoring. Descriptions of these two vapor monitoring techniques and the schedule for air monitoring using each technique are provided in the following sections.

#### FIXED AIR MONITORING STATIONS

Two fixed air monitoring stations will be established at the Site. One air monitoring station will be established immediately above biosparging wells at Brown's Creek and a second station will be established immediately above biosparging wells at Cupboard Creek. The locations of these two proposed air monitoring stations are shown on **Figure 1**.

Each air monitoring stations will consist of a MiniRae photoionization detector (PID) and explosive atmosphere meter in a Pelican Case enclosure. A cut sheet for the MiniRae is attached. The MiniRae PID measures volatile organic compounds (VOCs) in air at concentrations from 0 to 15,000 parts per million (ppm). The MiniRae will be programmed to log VOC concentration at 10 minute intervals. Although the MiniRae can capture more than 59 months of data when logging at 10-minute intervals, the data will be downloaded at routine intervals and reviewed.

The MiniRae will be placed in a Pelican Case for protection from elements and weather. The Pelican Case will be attached to a tree or other fixed object at an elevation between 3 and 6 feet above ground surface (the breathing zone).

Prior to deployment each MiniRae will be turned on, allowed to reach ambient operating temperature, and then calibrated in accordance with manufacturer's instructions. A calibration log will be maintained for each instrument.

The MiniRae nominal battery life is between 12 and 16 hours. MiniRaes deployed in Fixed Air Monitoring Stations will be connected to a marine battery, which extends the operational period to one week.

Fixed Air Monitoring Stations will be deployed and operating for a minimum of 24-hours prior to operating the biosparging system. Logged data will be downloaded at the following frequencies:

- Daily during the first week of biosparging system operation,
- Three times per week during the second and third weeks of biosparging system operation
- Twice per week during the fourth week of biosparging system operation

If air monitoring results indicate that startup and operation of the biosparging system is being performed in a manner that does not adversely affect nearby receptors by producing vapors or odors, then the Fixed Air Monitoring Stations will be demobilized after a month of data collection.

#### **MOBILE AMBIENT AIR MONITORING**

Mobile ambient air monitoring will be performed in select areas along Brown's Creek and Cupboard Creek at and down-gradient of biosparging wells. These areas are identified on Figure 1.

Ambient Air Monitoring will consist of a person walking through the area looking for indications of biosparging causing vapors to emanate at ground surface, for hydrocarbon sheens on surface water, and for odors. The person will use a MiniRae PID to monitor for VOCs at the following locations:

- Surface water sampling locations (SW-03, SW-06, SW-12)
- Where the creek passes under Lewis Drive
- General area of the 45 vertical biosparge wells

Ambient air monitoring results will be maintained in a logbook or on data sheets.

Ambient Air Monitoring will be performed for a minimum of 24-hours prior to operating the biosparging system. After startup of the biosparging system the frequency of Ambient Air Monitoring will be:

- Daily during the first week of biosparging system operation,
- Three times per week during the second and third weeks of biosparging system operation
- Twice per week during the fourth week of biosparging system operation
- Monthly for the second and third months of biosparging system operation
- Quarterly thereafter when the biosparging system is operating

The frequency of air monitoring will reset if there are major changes to biosparging system operation, or a prolonged period (e.g. more than two months) when the system is not operated.



## **REPORTING OF RESULTS**

Results of air monitoring will be provided to SCDHEC in data submittals weekly for the first month, monthly for the next two months, and quarterly thereafter. Data submittals will consist of a brief narrative addressing the monitoring period, type of data collected, map with sampling station locations, and tables of results. Quarterly reports will provide a discussion of the results and recommendations for warranted changes to the monitoring plan.

Data submittals will be provided at the following frequency:

- Weekly emails during the first month of vapor monitoring
- Monthly emails during the second and third months of vapor monitoring

Quarterly reports will be provided to SCDHEC within one month following the end of the vapor monitoring period covered by the report.

## **RESPONSE TO DETECTIONS OF VOCs**

The response to detections of VOCs in air will depend on the nature, magnitude, and relative location of the detection.

If VOCs are detected by air monitoring at locations above biosparging wells will be responded to by shutting off or decreasing the air flow rate to wells. Supplemental air monitoring results at the same location will be reviewed to verify that the reduced air flow to biosparging wells eliminates the VOC detections.

If VOCs are detected at locations away from biosparging wells, observations will be made to search for indications of air discharges at ground surface or other sources of the VOCs. The specific response to these potential VOC sources will be developed based on conditions encountered in the field.

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March 1, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, SC 29201

Subject: Response to Comments in SCDHEC Letter titled "Corrective Action Plan Review,"  
dated January 27, 2017 (with errata dated January 31, 2017)  
Plantation Pipe Line Company  
Lewis Drive Remediation Site  
Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared this response to comments received from the South Carolina Department of Health and Environmental Control (SCDHEC) in their letter date-stamped January 27, 2017 (with a subsequent errata letter date-stamped January 31, 2017), requesting that an addendum to the *Corrective Action Plan, Lewis Drive Release Site, Belton, South Carolina* (CAP) submitted on September 1, 2016 (CH2M, 2016c), be provided within 30 days. Questions and comments received by SCDHEC during a 47-day public comment period were also included in their letter.

Each of the comments provided in the SCDHEC correspondence are listed below, followed by Plantation's response to the comment. The CAP Addendum is also being submitted at this time under separate cover.

## A) Comments from SCDHEC

**Comment 1:** *Case studies or information demonstrating that the proposed biosparging approach is appropriate for plumes where free product is present that is comparable to the referenced site.*

**Response:** A variety of remediation alternatives were screened and evaluated for this site. Section 2 of the CAP Addendum describes the evaluation and rationale for selection of the proposed remedy. Appendix A of the CAP Addendum provides a variety of case studies in which sparging was used to address free product. The Selma 3 project at a terminal in Selma, North Carolina, in particular, illustrates that sparging without soil vapor extraction was an effective remediation technology to reduce a considerable amount of free product. On this project, product thicknesses were reduced from 4 feet to zero in 12 months of air sparging

operation without accompanying soil vapor extraction. The sparging did not result in the growth of a dissolved plume or pushing of the free product offsite. A paper summarizing the Selma 3 project has been provided.

**Comment 2:** *A larger map of the proposed biosparging layout than was provided (Figure 9). The revised map will need to clearly illustrate the layout, all wells, trenches, sumps, and the creeks.*

**Response:** Figure 9 has been reprinted on 22- by 34-inch paper. See Figure 9a included in Attachment 1. Five copies have been provided.

**Comment 3:** *A strategy for biosparging technology in each remediation area in regard to duration, air injection rate, and interim remediation goals.*

**Response:** The *Startup Plan for Surface Water Protection Measures* submitted to SCDHEC on February 23, 2017 (CH2M, 2017c), provides details on the operational strategy for the surface water protection zones in the first month of startup, including air injection rates and pulsing sequences. As discussed in the referenced document, the proposed initial flow rates are very low (1 standard cubic foot per minute [scfm] per well) to slowly establish aerobic conditions and to limit volatilization of hydrocarbons. Air injection rates are planned to be gradually increased over time to optimize system performance until initially reaching 4 scfm per well. Monitoring will be conducted to evaluate system performance, and will take various forms including visual observations, field measurements, and analytical results. The CAP Addendum provides the detailed operational strategy for each of the other two remediation areas of the site, including a discussion of pulsing vs. continuous airflow per area, pulsing sequencing, air injection rates, and monitoring aspects.

At this time, we propose the following interim remediation goal: no surface water quality exceedances within 6 months following startup of the sparging system in the surface water protection zones. Once the system has reached a steady state of operation and some performance data have been collected, other interim goals may be established in consultation with SCDHEC. Until system performance can be established, it is premature, or speculative, to try to establish additional performance measures for the proposed system.

**Comment 4:** *Section 7.2 (Initial System Operational Concepts). Provide more detailed information regarding what observations will be made and what measurements will be collected to determine if pulsing mode is used in the shallow bedrock zone, identifying specific wells and or points from which data will be collected.*

**Response:** As detailed in the Startup Plan and CAP Addendum, performance monitoring will consist of a combination of dissolved oxygen (DO) measurements, water level measurements, and groundwater sampling (including both contaminants and geochemical/biodegradation parameters). The determination to pulse or continuously inject in the shallow bedrock zone will be made based on an evaluation of these parameters in the three bedrock sparging wells installed in January 2017 to evaluate final spacing and design of the shallow bedrock sparging system. Based on our extensive experience with vertical sparging wells, we anticipate that pulsing will likely be pursued for this area. Once testing is completed in this area of the site, a specific operating plan will be submitted for SCDHEC approval.

**Comment 5:** *Section 7.2 (Initial System Operational Concepts). Provide what specific data will be collected and the criteria that will be followed to determine changes to flow rates.*

**Response:** As detailed in the Startup Plan and CAP Addendum, the overall operational goal for the system is to initiate at low flow rates and increase the rate periodically while monitoring throughout the startup phase. Generally, decisions to increase the air injection rates will be

based on the degree and time of mounding, the containment of the plume, and the degree of volatilization occurring. Much of this depends on establishing aerobic conditions in the vadose zone and the ability of the vadose zone to assimilate vapors coming from the sparging operations.

**Comment 6:** *A tabulation of monitoring wells that will be used to monitor the effectiveness of the remedial strategy categorized by each of the five treatment areas. This should include wells outside the plume and wells within the plume, proposed parameters, and a proposed monitoring schedule.*

**Response:** Please see the Startup Plan and CAP Addendum for a detailed monitoring plan, which includes a tabulation of monitoring wells, subdivided by treatment area of the site, that will be used to monitor the effectiveness of the remedial actions. Table 2 of the CAP Addendum includes parameter selection, monitoring frequency, etc. The selected wells include points both within and outside the plume.

**Comment 7:** *A detailed effectiveness monitoring schedule. The Agency will consider a variable monitoring schedule; however, the plan should propose the specific criteria that will be used as a basis for determining the frequency of monitoring.*

**Response:** Please see the Startup Plan and CAP Addendum for a detailed effectiveness monitoring plan, which includes a tabulation of monitoring wells subdivided by treatment area of the site, parameter selection, monitoring frequency, etc.

**Comment 8:** *Continuation of free product and groundwater elevation gauging. Recharge rates for each recovery well, recovery sump, and recovery trench will need to be determined so that site-specific data supports an appropriate product recovery schedule. As site conditions change, recharge rates will need to be evaluated to determine the most effective recovery rate.*

**Response:** Plantation will continue to gauge free product and groundwater elevations on a regular basis as described in the most recent revision of the *Product Recovery Plan, Revision 2* (CH2M, 2016b). We further concur that transmissivity values (which are the best indicator of recoverability) calculated from baildown testing will be instrumental in determining recoverability and the frequency of recovery. Plantation proposes to conduct baildown testing in accordance with ASTM International E2856-13 at the following locations: RW-02, RW-04, RW-06, RW-09, RW-12, RW-13, and RW-14. These locations were selected to be representative of each area of the main product body. We anticipate that these locations will be sufficient to assess the variability of recovery at the site and to identify a recovery frequency that will change with time.

Based on the results of the baildown tests and subsequent product recovery measurements, it is anticipated that long-term recovery efforts will focus only on certain areas of the site or wells, or ultimately discontinuing recovery altogether when the practical product recovery limit is achieved. Conservatively, this limit is achieved in a given well once its transmissivity value decreases to less than 0.1 square foot per day (ft<sup>2</sup>/day) (ITRC, 2009).

**Comment 9:** *Continuation of free product recovery as long as measureable levels of product exists.*

**Response:** Although removal of free product using vacuum trucks is one of the least effective methods to reduce product, Plantation will continue to do so even after starting the biosparging system. Plantation will work with SCDHEC as remediation progresses to evaluate the efficiency and focus of recovery efforts using the best evaluation means available.

**Comment 10:** *Section 8.1.1 (Visual Observations) must state that visual inspections will be performed for evidence of petroleum sheen on surface waters, odors in the area, and/or distressed vegetation or biota on all areas of the site: including along Brown's Creek and Cupboard Creek. Provide a strategy to address any detected sheen, seeps, dead and/or distressed vegetation, distressed and /or dead biota, or out of the ordinary odors.*

**Response:** This has been revised accordingly in Section 3.6 of the CAP Addendum. If any of the following are observed and have not been previously reported, the observer will immediately notify the CH2M project manager by phone: petroleum sheen, seeps, dead and/or distressed vegetation, dead and/or distressed biota, or out-of-the-ordinary odors. Due to the low flow of Brown's Creek and Cupboard Creek, there is a prevalence of biological sheen, which can be confused with a petroleum sheen. Before being reported, a petroleum sheen will first be distinguished from a biological sheen by the methods described in Section 3.6 of the CAP Addendum. In general, those methods include using a stick to try to break up the sheen (a bacterial sheen will typically break into small platelets, whereas a petroleum sheen will quickly try to reform after any disturbance), and/or placing a petroleum-absorbent pad on the sheen to see if it absorbs any petroleum constituents.

**Comment 11:** *Installation of an additional permanent bedrock well down-gradient of MW-17B, located between the area of MW-17B and MW-21 along the pipeline. This well should be as close in proximity to the pipeline as is MW-17B.*

**Response:** Installation of permanent shallow and bedrock well pair MW-45/45B was completed on January 27, 2017, in close proximity to the pipeline and downgradient of MW-17B. Combination boring logs/well construction diagrams for MW-45 and MW-45B are included in Attachment 2.

**Comment 12:** *Installation of permanent wells (shallow & bedrock) in the area between MW-1 and MW-22.*

**Response:** Installation of permanent shallow and bedrock well pair MW-44/44B was completed on January 25, 2017, in the area between MW-01 and MW-22. Combination boring logs/well construction diagrams for MW-44 and MW-44B are included in Attachment 2.

**Comment 13:** *Installation of permanent wells (shallow & bedrock) in the area on the opposite side of Brown's Creek, across the creek from the location of SW-12.*

**Response:** Due to extremely wet site conditions, wells were not able to be installed at this location in January 2017. As discussed with SCDHEC, installation will be attempted again during a drier time of year. The timing for this work will be coordinated with SCDHEC during regular update meetings.

**Comment 14:** *A proposal to remediate the seep areas immediately up-gradient of Brown's Creek. In the November 4, 2016 meeting, Plantation Pipeline informed the Agency that the use of oxygen release compound or sodium persulfate would be evaluated.*

**Response:** Reactive core mat consisting of granular activated carbon will be installed at the two identified seep locations immediately upgradient of Brown's Creek in accordance with the *Surface Water Protection Plan Addendum*, submitted to SCDHEC on January 20, 2017 (CH2M, 2017a), and SCDHEC's approval dated February 10, 2017. This action is also described in Section 4, Focused Seep Abatement, of the CAP Addendum.

**Comment 15:** *A proposal to remediate all areas of bedrock with exceedances to risk based corrective action or details regarding how bedrock contamination will be addressed.*

**Response:** Groundwater in the Shallow Bedrock Zone will be remediated through an estimated 13 vertical sparging wells installed into bedrock, as outlined in Section 5.1.3 of the CAP (CH2M, 2016). In the other areas of the dissolved plume, Plantation will monitor the quality of the bedrock aquifer and will adjust remediation activities as needed to address effective cleanup of the site.

Adjustments to the system and the remedial approach will be discussed during regular meeting updates with SCDHEC.

**Comment 16:** *A proposal to install an additional well on the bank immediately opposite to the location of SW-1, as discussed in the November 4, 2016 meeting. It was noted during the December 6, 2016 site visit, that the well that was to be installed in the referenced area was relocated further to the southeast. When discussed during the December 6, 2016 site visit, Patrick Ferringier with CH2M stated that the drill rig was not able to reach the proposed area. This possibility was discussed during the November 4, 2016 meeting and the Agency stated that if a drill rig was not able to access the discussed location, installation of a hand augured well would be acceptable as long as the well was installed in compliance with the South Carolina Well Standards (R. 61-71).*

**Response:** Plantation submitted a *Request for Well Permit to Install Additional Monitoring Well (MW-34)* to SCDHEC on February 7, 2017 (CH2M, 2017b) and it was approved by SCDHEC on February 10, 2017. The well is scheduled to be installed by hand auger during the first 2 weeks of March 2017.

**Comment 17:** *A routine petroleum absorbent boom inspection and replacement strategy, as discussed during the December 6, 2016 site visit.*

**Response:** As described in Section 3.8 of the CAP Addendum, petroleum-absorbent booms are currently in place at different points along Brown's Creek as a contingency measure in case additional seep(s) manifest at the site. These booms will be inspected on a monthly basis and replaced quarterly, at a minimum, or sooner if any boom(s) show evidence of deterioration, yellowing, or vegetative growth. Removal of the booms will be discussed with SCDHEC during regular update meetings based on monitoring data being collected at the site.

**Comment 18:** *Clarification regarding the use of diffusion aerators in Brown's Creek. It is the Agency's understanding, based upon information shared during the November 4, 2016 meeting and author's conversation with Scott Powell January 4, 2017, that the diffusion aerators in Brown's Creek will be used to treat the contamination already present in the creek. Further, the diffusion aerators are not proposed as a continuing remediation measure as the vertical sparging wells and the remediation method discussed in item 14 are intended to treat the contamination prior to reaching the creek.*

**Response:** The diffusion aerators in Brown's Creek are only intended to abate existing impacts in the creek and to improve overall natural water quality of this relatively stagnant body of water. Other protective measures are designed to intercept product and reduce dissolved concentrations in groundwater before reaching the creek. These other protective measures include product evacuation from recovery wells and recovery trench RT-2, biosparging through the vertical sparging curtain upgradient of Brown's Creek, and the reactive core mat mentioned in Comment 14.

**Comment 19:** *In the event contamination continues to impact Brown's Creek after implementation of the biosparging system, a plan to implement immediate measures that will prevent discharge of petroleum constituents (free phase and dissolved phase) from reaching Brown's Creek should be proposed. The plan should include a monitoring system to monitor the effectiveness of proposed method. Data collected from the monitoring wells located closest to Brown's Creek will assist with this evaluation.*

**Response:** Because of the distance between Brown's Creek and the closest vertical sparging curtain (which varies around 70 to 100 feet), the effects of sparging near Brown's Creek will not be immediately noticeable in surface water samples or in the monitoring wells closest to Brown's Creek (monitoring wells MW-37 through MW-42). If, however, after a sufficient period of sparging (likely 180 days or more), hydrocarbon levels in these monitoring wells are not decreasing, additional measures will be discussed with SCDHEC. Potential contingency measures will be discussed during the first progress update meeting with SCDHEC.

In the meantime, reactive core mat is being installed at the location of the two known seeps (see CAP Addendum Section 4). If additional seeps are identified, reactive core mat also may be installed in those areas as approved by SCDHEC. In addition, the diffusion aerators operating in Brown's Creek will abate existing hydrocarbons in Brown's Creek while the sparging is allowed to take full effect.

## B) Public Comments

**Comment 1:** *Surface water is returned to its natural state prior to the pipeline release.*

**Response:** Plantation will comply with federal and state laws regarding surface water quality. Although Plantation plans to comply with applicable cleanup criteria, we believe that remedial measures being implemented will return the creek to its natural state prior to the pipeline release.

**Comment 2:** *Free phase product is evacuated from existing recovery wells as long as product is measured and additional recovery wells are installed so that as much product as possible can be recovered.*

**Response:** The ground can be thought of as a sponge. Even when you wring it out, it still retains some moisture. Recovering product through recovery wells is analogous to inserting a straw into the sponge to suck it dry. It is one of the least effective methods to remove and/or treat product in the subsurface. Because the release was identified early, and because Plantation installed a dense network of over 37 recovery wells, sumps, and trenches to intercept and recover product, Plantation has been very successful in recovering product at the site. Ongoing recovery efforts will become increasingly less effective.

In order to address the remaining hydrocarbons at the site, the project team designed an innovative sparging system. Sparging is an environmental remediation technology that involves injecting atmospheric air into the groundwater and saturated soils. This stimulates the native microbial community to biodegrade residual hydrocarbons. Sparging is a proven remediation technology that has been shown to reliably reduce both free-phase product and dissolved hydrocarbons in groundwater much more rapidly and over a much broader area than direct removal.

Plantation will continue to evacuate product from the existing recovery features even after the sparging system has been initiated. However, product recovery by conventional vacuum means will prove less and less effective as the "sponge" dries up. Plantation will continue to monitor and test the characteristics of the aquifer and the body of free product to determine the most effective and efficient product recovery strategy. Plantation will continue to work closely with SCDHEC to evaluate the current strategy and adjust as necessary to meet the remediation goals.



**Comment 3:** *Additional biosparging is conducted.*

**Response:** As the system is initiated, the area of influence of the horizontal and vertical sparging wells will be monitored and evaluated. The sparging system can and will be adjusted based on those observations. Adjustments might include increasing or decreasing flow rates to particular features, or adding additional sparging wells. The sparging manifold has been specifically designed for potential expansion with 12 spare connection points for additional sparging wells if necessary. If monitoring results indicate that additional sparging wells would be effective, then Plantation will propose their locations and depths to SCDHEC to obtain permits to construct them.

**Comment 4:** *A pore water study is conducted.*

**Response:** As stated in a letter to SCDHEC dated April 21, 2016, "Response to Request for Pore Water Sampling Plan," (CH2M, 2016a) existing data indicate that a pore water study would not significantly broaden the current understanding of the site conceptual model, nor would it provide useful information for the design or implementation of the proposed biosparging remedy. SCDHEC affirmed this response in a letter dated June 13, 2016. In that letter, SCDHEC stated,

"In regard to the Response to Request for Pore Water Sampling Plan, it was agreed during the May 2, 2016 meeting that [a] Pore Water Investigation would not be conducted. However, it was also agreed that 6 additional permanent shallow monitoring points would be installed immediately beside Brown's Creek as permanent sampling locations and as pore water sampling points."

These monitoring wells (MW-37, MW-38, MW-39, MW-40, MW-41, and MW-42) have all been installed, and a seventh monitoring well is scheduled to be installed between MW-38 and MW-39 in February 2017.

**Comment 5:** *Clear deadlines / goals are provided in regard to the remediation and frequent monitoring is conducted to ensure deadlines / goals are met.*

**Response:** We agree that clearly defined goals are necessary for proper environmental remediation. We refer the reader to the corrective action objectives as stated in the CAP (CH2M, 2016c). Achieving these objectives necessarily requires time, and Plantation is committed to achieving these objectives. From the outset, Plantation has taken full responsibility for the release and expressed their commitment to a thorough and complete investigation and remediation of the site in accordance with all applicable laws and regulations. Their commitment and comprehensive approach to the full remediation and restoration of this area has been well received by the State and we will continue these efforts. Deadlines and goals will be discussed at regular update meetings with SCDHEC as site performance data become available.

### C) Comments on BIOSCREEN Modeling

**Comment:** *For the results from the Bioscreen Model to be considered valid, the plume being modeled must be stable or decreasing. Since the referenced plume is neither stable nor decreasing, any site specific target levels (SSTLs) that were calculated would be invalid. However, the following questions and/or comments did arise from the initial review of the provided modeling effort:*

*a) There is an order of magnitude variation between the hydraulic conductivity reported from the falling head and rising head slug tests at MW-2 and MW-15 used in the model. Due to the large variation;*

*rather than use the average of the two tests, additional tests to produce a more accurate estimate must be conducted and provided.*

*b) There appears to be a conversion calculation error for the hydraulic conductivity used for the "South to Cupboard Creek" estimate.*

*c) Simulation time should be increased until steady state is reached.*

*d) Upon validation that the referenced plume is stable or concentrations of petroleum constituents are decreasing, SSTs will need to be re-evaluated. Reassessment will need to continue with time, as site conditions change.*

**Response:** We agree with SCDHEC that the dissolved plume is neither stable nor decreasing. However, the intent of BIOSCREEN modeling was to propose a quantifiable endpoint to active remediation. Once the plume is shown to be stable or decreasing (in the future, after biosparging has been allowed to take effect), then the BIOSCREEN model results can indicate whether the extents and concentrations of the plume are sufficiently reduced as to no longer require active remediation to prevent further impacts to receptors.

Since we agree that the dissolved plume is not yet stable or decreasing, Plantation proposes to defer evaluation of natural attenuation as an endpoint through the BIOSCREEN model until such time as groundwater monitoring data trends indicate that the dissolved plume is either stable or decreasing. Since we are deferring this modeling at this time, Correction Action Objective Number 3 (CAP Section 4) that uses BIOSCREEN modeling to recommend endpoints for active remediation will be deferred.

#### D) Comments from Southern Environmental Law Center

Below is a series of comments provided by the Southern Environmental Law Center (SELC) regarding the CAP, which SCDHEC provided for public comment. It is our understanding that SCDHEC considered SELC's comments in developing the specific comments that Plantation has responded to above. Plantation has carefully reviewed SELC's comments and believes its responses contained in this letter to SCDHEC and the public comments adequately address SELC's comments. Plantation has taken full responsibility for the release and expressed their commitment to a thorough and complete investigation and remediation of the site in accordance with all applicable laws and regulations.

**Comment 1:** *The Corrective Action Plan objectives must be revised.*

**Response:** Plantation does not anticipate revising corrective action objectives, except regarding deferral of the BIOSCREEN modeling component as discussed above in Plantation's response to SCDHEC Comment C.

**Comment 2:** *The Site must be adequately surveyed and sampled.*

**Response:** The assessment of the site has been discussed at length with SCDHEC. Ongoing monitoring will continue and be adjusted as necessary based on performance of the system.

**Comment 3:** *The Corrective Action Plan must include a discussion of other feasible remedial technologies.*

**Response:** See Plantation's response to SCDHEC Comment 1.

**Comment 4:** *Gasoline recovery efforts must continue.*

**Response:** See Plantation's response to SCDHEC Comments 8 and 9.

**Comment 5:** *More biosparging wells must be installed.*

**Response:** See Plantation's response to SCDHEC Comments 3 and 15 and Public Comments 2 and 3.

**Comment 6:** *Measures must be developed to protect surface waters in rain events.*

**Response:** See Plantation's response to SCDHEC Comments 14 and 19.

**Comment 7:** *The Corrective Action Plan must include adequate monitoring and reporting, as well as a more detailed schedule.*

**Response:** See Plantation's response to SCDHEC Comments 4, 5, 6, 7, 10, and 17.

**Comment 8:** *Continued transparency and public participation is essential.*

**Response:** From the beginning, Plantation has worked with SCDHEC in a transparent manner and welcomes public participation.

If you have any further questions or concerns, please call me at (919) 760-1777, Mr. Scott Powell/CH2M at (678) 530-4457, or Mr. Jerry Aycock/Plantation at (770) 751-4165.

Regards,  
CH2M HILL Engineers, Inc.



William M. Waldron, P.E.  
Senior Project Manager

**Attachments:**

- Attachment 1 – Figure 9a, Proposed Sparging Layout (Large Format); 5 copies
- Attachment 2 – Well Construction Diagrams for MW-44, MW-44B, MW-45, and MW-45B

c: Jerry Aycock, Plantation (Digital, Jerry\_Aycock@kindermorgan.com)  
Mary Clair Lyons, Esq., Plantation (Digital, Mary\_Lyons@kindermorgan.com)  
Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC (Digital, rmorton@wcsr.com)  
File

## References

- CH2M HILL Engineers, Inc. (CH2M). 2016a. "Response to Request for Pore Water Sampling Plan." Letter to South Carolina Department of Health and Environmental Control. April 21.
- CH2M HILL Engineers, Inc. (CH2M). 2016b. *Product Recovery Plan, Revision 2*. June 23.
- CH2M HILL Engineers, Inc. (CH2M). 2016c. *Corrective Action Plan, Lewis Drive Release Site, Belton, South Carolina. Site ID Number 18693 ("Kinder Morgan Belton Pipeline Release")*. September 1.
- CH2M HILL Engineers, Inc. (CH2M). 2017a. *Surface Water Protection Plan Addendum, Lewis Drive Release, Plantation Pipe Line Company, Belton, South Carolina, Site ID #18693, "Kinder Morgan Belton Pipeline Release."* Submitted to South Carolina Department of Health and Environmental Control. January 20.
- CH2M HILL Engineers, Inc. (CH2M). 2017b. *Request for Well Permit to Install Additional Monitoring Well (MW-34)*. Submitted to South Carolina Department of Health and Environmental Control. February 7.
- CH2M HILL Engineers, Inc. (CH2M). 2017c. *Startup Plan for Surface Water Protection Measures – Revision 2, Lewis Drive Remediation, Plantation Pipe Line Company, Belton, South Carolina, Site ID #18693, "Kinder Morgan Belton Pipeline Release."* Submitted to South Carolina Department of Health and Environmental Control. February 23.
- Interstate Technology & Regulatory Council (ITRC). 2009. *Evaluating LNAPL Remedial Technologies for Achieving Project Goals*. LNAPL-2. Washington, D.C. Prepared by the Interstate Technology & Regulatory Council LNAPLs Team. December. [www.itrcweb.org](http://www.itrcweb.org).
- South Carolina Department of Health and Environmental Control (SCDHEC). 2017. "Corrective Action Plan Review." Letter to Plantation Pipeline Company. January 27 (with errata dated January 31, 2017).

Attachment 1  
Figure 9a, Proposed Sparging Layout  
(Large Format)

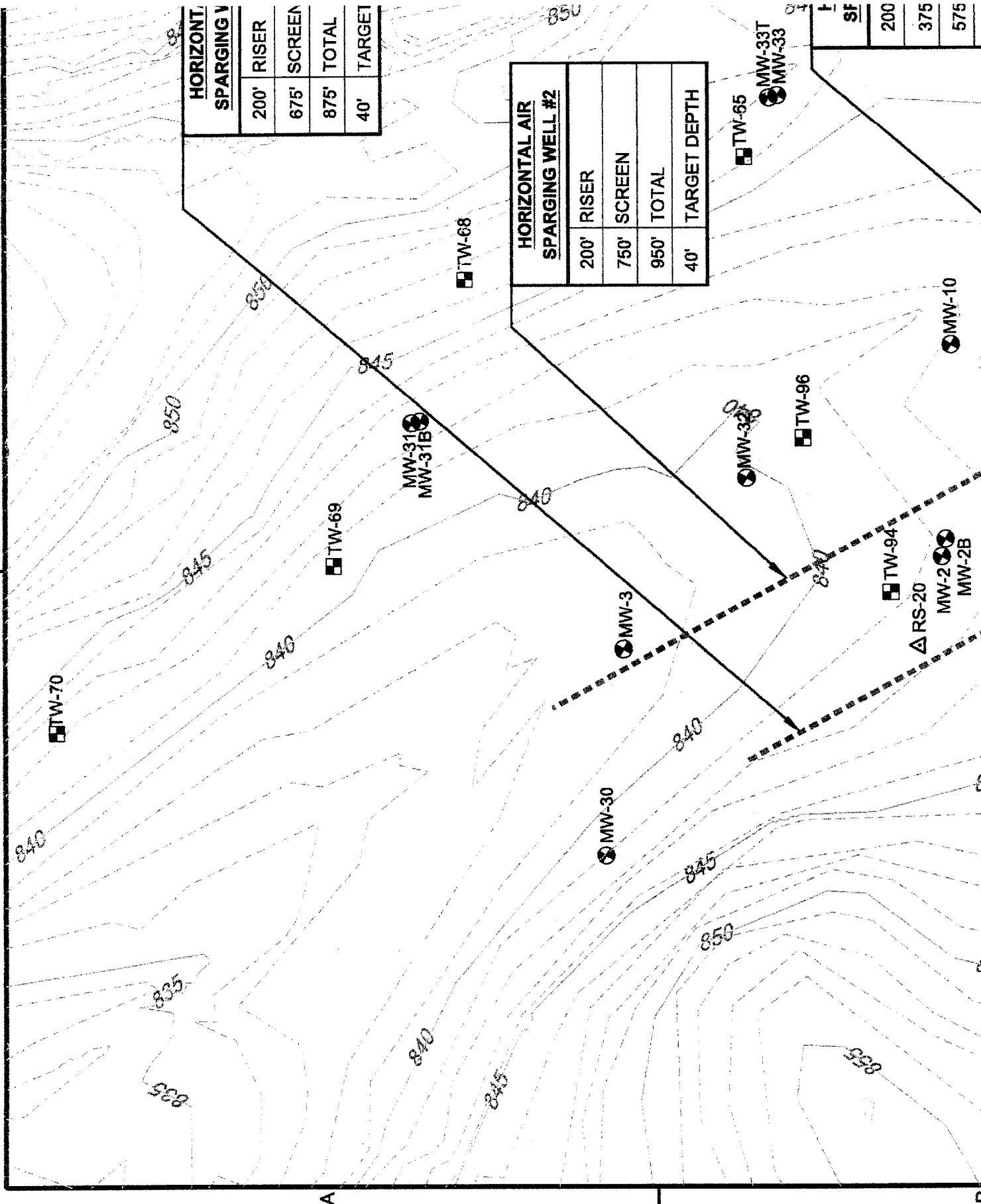
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1

HORIZONTAL AIR SPARGING V	
200'	RISER
675'	SCREEN
875'	TOTAL
40'	TARGET

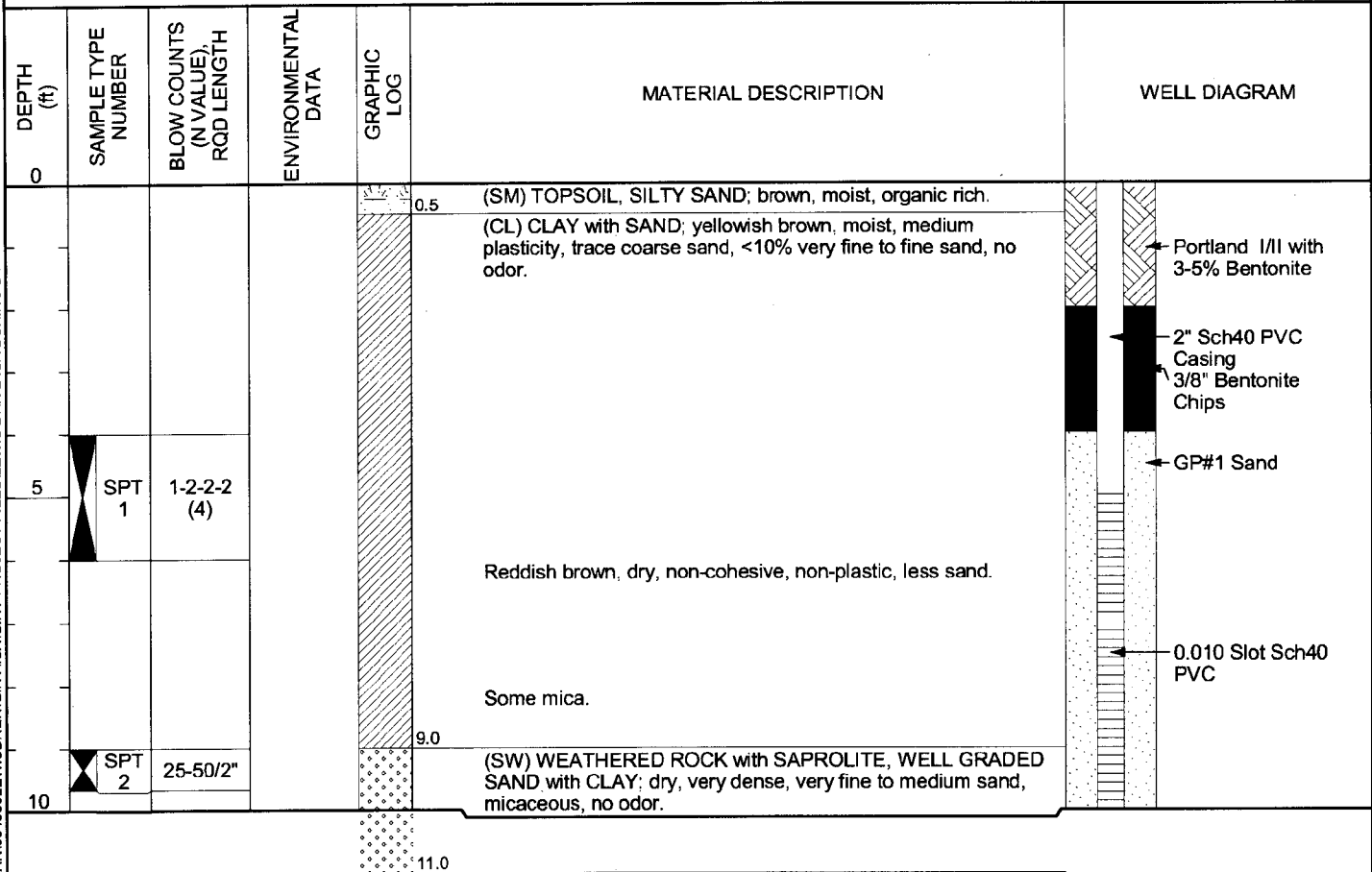
HORIZONTAL AIR SPARGING WELL #2	
200'	RISER
750'	SCREEN
950'	TOTAL
40'	TARGET DEPTH

F	SF
200	
375	
575	



Attachment 2  
Well Construction Diagrams for  
MW-44, MW-44B, MW-45, and  
MW-45B

**AFTER DRILLING** ---



Bottom of borehole at 10.0 feet.



**AFTER DRILLING ---**

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WMA D FBA 000104

**PROJECT NAME** Lewis Drive Remediation

**PROJECT LOCATION** Belton, South Carolina

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Bottom of borehole at 37.1 feet.

CLIENT Plantation Pipe Line Company

PROJECT NAME Lewis Drive Remediation

PROJECT NUMBER 684910

PROJECT LOCATION Belton, South Carolina

DATE STARTED 1/26/17

COMPLETED 1/26/17

GROUND ELEVATION

HOLE SIZE 6.25 inches

DRILLING CONTRACTOR AE Drilling

GROUND WATER LEVELS:

DRILLING METHOD Hollow Stem Auger

AT TIME OF DRILLING ---

LOGGED BY P. Ferringier/CLT

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE) RQD LENGTH	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0					(SC) TOPSOIL, CLAYEY SAND; olive brown, moist, loose, non-cohesive, very fine to coarse sand, trace organics, no odor.	
1.5					(CL) CLAY; reddish brown, dry to moist, stiff, cohesive, low plasticity, <10% very fine to medium sand, trace manganese nodules and veinlettes.	Portland I/II with 3-5% Bentonite
5	SPT 1	4-5-4-6 (9)			Trace mica, less manganese.	3/8" Bentonite Chips
					Red, non-cohesive, >15% sand, micaceous, tan clay veins.	2" Sch40 PVC Casing
10	SPT 2	4-4-5-5 (9)			Moist, trace thin lamination, increasing silt, micaceous.	GP#1 Sand
10.5					(SM) SAPROLITE, SANDY SILT with CLAY; reddish brown, dry to moist, stiff, non-cohesive, very fine to fine sand, micaceous.	0.010 Slot Sch40 PVC
14.0					Trace weathered rock fragments.	
15	SPT 3	10-50/4"			(SW) WEATHERED ROCK, WELL GRADED SAND; biotite gneiss, moist, dense to very dense, trace rock fragments, very fine to coarse sand, trace oxidation, no odor.	

Bottom of borehole at 15.0 feet.

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<b>CLIENT</b> <u>Plantation Pipe Line Company</u>	<b>PROJECT NAME</b> <u>Lewis Drive Remediation</u>
<b>PROJECT NUMBER</b> <u>684910</u>	<b>PROJECT LOCATION</b> <u>Belton, South Carolina</u>
<b>DATE STARTED</b> <u>1/25/17</u> <b>COMPLETED</b> <u>1/27/17</u>	<b>GROUND ELEVATION</b> _____ <b>HOLE SIZE</b> <u>8/4 inches</u>
<b>DRILLING CONTRACTOR</b> <u>AE Drilling</u>	<b>GROUND WATER LEVELS:</b>
<b>DRILLING METHOD</b> <u>Hollow Stem Auger/Wire Line/Air Rotary</u>	<b>AT TIME OF DRILLING</b> <u>---</u>
<b>LOGGED BY</b> <u>P. Ferringer/CLT</u> <b>CHECKED BY</b> _____	<b>AT END OF DRILLING</b> <u>---</u>
<b>NOTES</b> <u>Core logged wet.</u>	<b>AFTER DRILLING</b> <u>---</u>

ENVIRONMENTAL BH - GINT STD US LAB GDT - 2/28/17 22:13 - Z:\KINDERMORGAN\6845581 LEWIS DRIVE\GINT\ISA\GINT PROJECT FILES\LEWIS DRIVE ISA BORING LOGS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE), RQD LENGTH	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						
1.5					(SC) TOPSOIL, CLAYEY SAND; olive brown, moist, loose, non-cohesive, very fine to coarse sand, trace organics, no odor.	
5	SPT 1	4-5-5-6 (10)	PID = 0		(CL) CLAY; reddish brown to red, dry to moist, stiff, cohesive, low plasticity, <10% very fine to medium sand, trace manganese nodules.	
10	SPT 2	4-5-4-5 (9)	PID = 0		Trace mica. Less clay, increasing mica.	
14.0					(SM) SAPROLITE, SANDY SILT with CLAY; reddish brown, dry, stiff, non-cohesive, very fine to fine sand, micaceous. 10.7' Intensely banded, trace weathered rock lenses.	
15	SPT 3	7-50	PID = 0		(SW) WEATHERED ROCK, WELL GRADED SAND; biotite gneiss, moist, dense to very dense, trace rock fragments, very fine to coarse sand, trace oxidation, no odor.	
15.6					BEDROCK, BIOTITE GNEISS; strong, grey and black, intensely foliated, slight decomposition, competent, trace disintegration, slightly fractured, trace large quartz crystals. 16.4: FRACTURE; joint, <5 degrees, extremely narrow, oxidized, undulating, dry with staining. 16.6: FRACTURE; joint, 20 degrees, extremely narrow, oxidized, smooth, damp. 17: 5mm thick biotite band. 17.7: Fresh, no discoloration or disintegration, increasing plagioclase and biotite bands.	
20	RC NQ1	60.5				
25	RC HQ1	52.8			Strong, fresh, competent, unfractured, increasing amphibole and biotite, intensely foliated, <2 degree foliation.	

4" Steel Casing  
Portland I/II with  
3-5% Bentonite

(Continued Next Page)

**PROJECT NAME** Lewis Drive Remediation

**PROJECT LOCATION** Belton, South Carolina

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Bottom of borehole at 40.3 feet.

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#12



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March 1, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, South Carolina 29201

Subject: Quality Assurance Project Plan, Revision 2  
Plantation Pipe Line Company  
Lewis Drive Remediation Site, Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared the enclosed Quality Assurance Project Plan (QAPP) Revision 2 for the Lewis Drive Site located in Belton, Anderson County, South Carolina. This QAPP supersedes previous revisions of the QAPP.

If you have any further questions or concerns, please contact me at (919) 760-1777 or Mr. Jerry Aycock with Plantation at (770) 751-4165.

Regards,  
CH2M HILL Engineers, Inc.

William M. Waldron, P.E.  
Senior Project Manager

Enclosure:

*Quality Assurance Project Plan, Revision 2, Lewis Drive Remediation Site, Belton, South Carolina,  
Site ID #18693, ("Kinder Morgan Belton Pipeline Release"), March 1, 2017*

c: (via e-mail)

Jerry Aycock, Plantation, Jerry\_Aycock@kindermorgan.com  
Mary Clair Lyons, Esq., Plantation, Mary\_Lyons@kindermorgan.com  
Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC, rmorton@wcsr.com  
File

# **Quality Assurance Project Plan (Revision 2)**



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# Section A: Project Management

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## A1 Title and Approval Page

Quality Assurance Project Plan  
Addendum to the SCDHEC UST Programmatic QAPP  
For  
Plantation Pipe Line Company/Site ID No. 18693

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Lewis Drive, Belton, Anderson County, South Carolina

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Prepared by: CH2M HILL Engineers, Inc. (CH2M)

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Date: February 9, 2015  
Revised: March 1, 2017  
CH2M HILL Engineers, Inc. (CH2M)

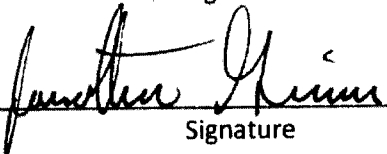
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### Approvals


Bobbi Coleman  
SCDHEC Project Manager

\_\_\_\_\_  
Signature Date \_\_\_\_\_

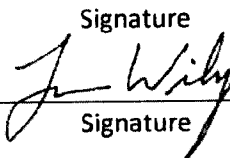
Jonathan Grimes  
Contractor QA Manager

  
Signature Date 3/1/17

William Waldron  
Contractor Project Manager

  
Signature Date 3/1/17

Tom Wiley  
Plan Preparer

  
Signature Date 3/1/17

Other signatures may be required and should be added as directed by SCDHEC UST Management Division.

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## A3 Distribution and Project Organization List

Name	Title/Role from UST Master QAPP	License/ Number/ Exp. date	Organization/Address	Telephone Number	Email Address
Bobbi Coleman	SCDHEC Technical Project Manager		SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-898-0673	<a href="mailto:colemabi@shec.sc.gov">colemabi@shec.sc.gov</a>
Thomas Kessler	Senior Technical Consultant		CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-530-4197	<a href="mailto:Thomas.Kessler@CH2M.com">Thomas.Kessler@CH2M.com</a>
William Waldron	Contractor Project/Site Manager		CH2M 3120 Highwoods Blvd Suite 214 Raleigh, NC 27604	919-760-1777	<a href="mailto:wwaldron@ch2m.com">wwaldron@ch2m.com</a>
Tom Wiley	Site Assessment Manager		CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-530-4388	<a href="mailto:twiley@ch2m.com">twiley@ch2m.com</a>
Jonathan Grimes	Lead Hydrologist	PG/ 2235/6/30/ 17	CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-530-4146	<a href="mailto:jgrimes@ch2m.com">jgrimes@ch2m.com</a>
Gerald Couch	Contractor Field Team Leader		CH2M Embassy Row 400 6600 Peachtree Dunwoody Road NE, Suite 600 Atlanta, GA 30328	678-488-8837	<a href="mailto:Gerald.Couch@ch2m.com">Gerald.Couch@ch2m.com</a>
Chris McCord	Laboratory Manager		ESC Lab Sciences 12065 Lebanon Rd Mt. Juliet, TN	704-614-2660	<a href="mailto:bkroll@esclabsciences.com">bkroll@esclabsciences.com</a>
Martin Johnson	Drilling Manager	Driller/ 2321/ 6/30/15	AE Drilling 2 United Way Greenville, SC 29607	864-288-1986	<a href="mailto:mjohnson@aedrilling.com">mjohnson@aedrilling.com</a>
James Pearsall	Surveyor	Surveyor/ 27458/ 6/30/15	Taylor Wiseman & Taylor 700 Forest Point Circle Suite 166 Charlotte, NC 28273	704-527-2535	<a href="mailto:pearsall@taylorwiseman.com">pearsall@taylorwiseman.com</a>

It is understood that certification records must be produced if requested by SCDHEC.

## A4 Problem Definition/Background

Discuss the background (as much as is known) of the site and appropriate historical information, and why this site is being assessed.

- Plantation Pipe Line Company (Plantation) operates a 26-inch fuel transmission line that passes along the western edge of Lewis Drive near Belton, Anderson County, South Carolina. On December

8, 2014 a fuel release occurred on the 26-inch the line approximately 600 feet north of the intersection of Lewis Drive and W Calhoun Road (State RD S-4 205) (Figure 1). Between December 8, 2014 and February 2, 2015, Plantation determined the release to be gasoline with a minor amount of diesel, Plantation and its contractors repaired the pipeline, installed product recovery sumps, product recovery wells, temporary wells, and product interceptor trenches upgradient of Brown's Creek (Figure 1). Between December 2014 and February 2017, Plantation and its contractors have installed 60 monitoring wells, 36 piezometers, and a sparging remediation system consisting of 45 vertical wells and 3 horizontal wells. Figure 1 also illustrates the extent of product as of May 2016.

Please answer the following: Does this project fall under UST or Brownfields area?

- The site has never operated USTs, but this release will be regulated by rules promulgated under the SCDHEC UST Management Division.

## A5 Project/Task Description

1. Summarize what is known about the work to be done. This can be a short sentence indicating what the Scope of this project is (see Master QAPP Section A6).
  - The work proposed includes: 1) the installation of additional overburden monitoring wells and bedrock monitoring wells to evaluate the distribution of dissolved hydrocarbons in groundwater along the periphery of the product body area, 2) the establishment of additional surface water sampling stations to monitor surface water quality in Cupboard Creek and Browns Creek and wetland area that borders the southern edge of the site; 3) the installation of up to 16 vertical bedrock sparging wells within the shallow bedrock layer to allow the injected air to be distributed via the same fracture network that transmitted impacts to groundwater in this zone.
2. Are there any time or resource constraints? Include those factors that may interfere with the tentative schedule.
  - Constraints may include weather, equipment failure/availability, subcontractor availability, and property access.

## A6 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)

Detail the geographical area that is to be part of the project. Maps should be included to show not only the topography and the geographical area of the State, but also to show more detail of the site itself including property lines.

- Figure 2 shows the locations of existing and proposed monitoring wells and sparging wells. Figure 3 shows the locations of surface water sampling points.

## Monitoring Well Installation and Development

### Regolith Monitoring Well Construction

The regolith monitoring wells will be constructed as Type II 2-inch diameter monitoring wells, and will be constructed in accordance with SCDHEC Well Standards R.61-71. All wells will be drilled and constructed by a South Carolina certified well driller in accordance with 40-23-10 seq. The wells will be drilled using hollow-stem auger (HSA). The wells will be constructed using 10 to 15 feet of 2-inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) well screen and a variable amount of 2-inch ID Schedule 40 PVC riser. The screen will have a slot size of 0.010-inches, and the screen will be positioned to straddle the water table to allow

product (if present) to enter the well, and to account for seasonal fluctuations of the water table. Sand pack will be placed in the annular space between the borehole and well screen and will be brought to a height 2-feet above the top of the well screen. A 2-foot bentonite seal will be placed above the sand pack and will be hydrated. The seal will be allowed to hydrate for a minimum of 1-hour before placing grout above the seal. A grout seal containing Portland cement mixed with 3 to 5 percent bentonite will be placed above the grout seal by forced injection via tremie pipe and will be brought to within 1-foot of ground surface.

#### ***Hand Installation of Regolith Monitoring Well***

At one location near Brown's Creek, it was determined that installing a well was not feasible using a mechanical drill rig, due to steep slopes and ditches and unstable ground surface (super saturated soils). Therefore the well (MW-34) will be installed using a hand auger due to site access issues.

The borehole will be advanced to a target depth of approximately 5 feet using a hand auger to create a nominal 4-inch diameter borehole. During borehole advancement, soil samples will be field screened for VOCs using a photoionization detector and characterized for lithology using the soil cuttings collected from the auger bucket.

The well will be constructed using 2.5-feet of schedule 40 PVC 2-inch prepacked internal diameter (ID) by 2.8-inch OD well screen and a variable amount of 2-inch ID Schedule 40 PVC riser. The screen will have a slot size of 0.010-inches. Additional sand pack shall be placed in the annular space between the borehole and prepacked well screen and shall be brought to a height 0.5-foot above the top of the well screen. A bentonite seal with a minimum thickness of 12-inches shall be placed above the sand pack and shall be hydrated. The seal shall be allowed to hydrate for a minimum of 1-hour before placing grout above the seal. A grout seal of at least 1-foot length, containing Portland cement mixed with 3 to 5 percent bentonite shall be placed above the grout seal and shall be brought to within 1-foot of ground surface.

The aboveground completion will be constructed above grade using a 6-inch diameter, approximately 3-feet high, locking anodized aluminum protective well casing set in a cylindrical concrete pad. The concrete pad will extend 1 ft above and 1 ft below the ground surface to ensure a better surface seal and protect the well from flooding. A weep hole will be drilled in the protective casing.

#### **Bedrock Monitoring Wells**

The five bedrock wells will be constructed as Type III wells (open hole in bedrock aquifer). The wells will be constructed in accordance with SCDHEC Well Standards R.61-71. All wells will be drilled and constructed by a South Carolina certified well driller in accordance with 40-23-10 seq. The wells will be drilled using a combination of HSA, rock coring, and air rotary or hammer. In each case, HSA drilling techniques will be used to drill through the regolith until auger refusal is encountered. A temporary casing will be installed and NQ-sized rock coring advanced until competent bedrock is encountered, as defined by a rock quality designation of 75% or greater. Following completion of rock coring, a nominal 10-inch borehole will be advanced 5 to 10 feet into competent bedrock. A six-inch steel casing will be installed in the borehole and grouted in place using by a forced-injection method via tremie pipe. Once the grout has cured for a minimum of 24 hours, a nominal 6-inch borehole will be advanced using air rotary or air hammer techniques approximately 10 to 20 feet or until the first water bearing fracture is encountered.

#### **Well Completions (Regolith and Bedrock)**

The wells will be finished as either flush-mount completions, or aboveground locations depending on specific well location requirements. Flush-mount wells will be installed in areas that are subject to vehicle and/or equipment traffic (roads, lawns), and while aboveground completions will be installed in areas not subject to vehicle/equipment traffic (peripheral edge of field), or in areas where a flush-mount well would be difficult to locate (woods). The flush-mount wells will be constructed using a watertight 8-inch diameter well vault set in a 2-foot square concrete pad recessed to surrounding grade. The aboveground completions

will be constructed using a locking well vault set in a 2-foot square concrete pad that is surrounded by four, steel bollards.

Each well will be secured with a locking well cap. In addition, a durable, weatherproof, rustproof, name plate that contains the following information will be affixed to the well vault:

- Company name and certification number of the driller who installed the well
- Date the well was completed
- Total depth (feet bTOC)
- Casing depth (feet bTOC)
- Screen interval (feet bTOC)
- Well identification

## Well Development

The wells will be developed by the well driller using a one or more of the following techniques:

- Airlift
- Surge block and well pump

The wells will be developed until the water produced is clear and free of sediment.

## A7 Certification

The following laboratory will be used for this project:

### Commercial Lab(s)

**Full Name of the Laboratory:** ESC Lab Sciences

**Name of Lab Director:** Eric Johnson

**SCDHEC Certification Number:** 84004002

Please note: SCDHEC may require that the contractor submit some or all of the Laboratory's SOPs as part of this QAPP.

## A8 Documents and Records

Personnel will receive the most current version of the QAPP Contractor Addendum via:

(Check all that apply)

☒ US Mail   ☐ Courier   ☒ Hand delivered

Other (please specify): \_\_\_\_\_

**Table 2A*****Record Identification, Storage, and Disposal***

<b>Record</b>	<b>Produced By</b>	<b>Hardcopy/ Electronic</b>	<b>Storage Location For how long?</b>	<b>Archival</b>
Monitoring Report	CH2M	Hardcopy and electronic copies to be provided to SCDHEC	Five years from date of report	Electronic copy is stored on CH2M and PLANTATION network

## Section B Measurement/Data Acquisition

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### B1 Sampling Process/Experimental Design

**Table 3A**  
*Sampling Activities*

<b>Task</b>	<b>Start Date</b>	<b>End Date</b>	<b>Comments</b>
QAPP revision preparation and submittal	February 17, 2017	March 6, 2017	
QAPP approval		March 17, 2017	
Monitoring well and bedrock sparging well installation and development	March 6, 2017	June 30, 2017	
Surface water sampling and analysis	March 27, 2017	December 31, 2017	
Groundwater Sampling and analysis	March 13, 2017	March 31, 2017	
Surveying	March 27, 2017	June 30, 2017	

---

Note: This schedule assumes regulatory approval by March 6, 2017



## B2 Sampling Methods

Please note: The contractor must follow sampling protocols as given in the UST QAPP.

Estimate the number of samples of each matrix that are expected to be collected:

Matrix	Number of Samples (per event)
Groundwater from monitoring wells	26
From surface water	16
Duplicate samples	3
Field blanks	5
Trip blanks	6
Total number of samples	56

The samples will be (check all that apply): ☒ Grab ☐ Homogenized ☒ Split

- Sample collection will be performed in accordance with the media specific requirements and techniques outlined in the SCDHEC UST Division Programmatic QAPP (May 2015).
- HydraSleeve™ sampling techniques will be used to collect groundwater samples from the monitoring wells for laboratory analysis. If there is not a sufficient water column in a well to fully submerge the HydraSleeve™ then low-flow purging and sampling techniques will be used to collect the groundwater samples, as described below.
- Low flow purging techniques will be used to collect groundwater samples from the monitoring wells for laboratory analysis, when HydraSleeve™ sampling techniques are not feasible. During purging and sampling drawdown will be no greater than 4-inches, and the tubing will be placed as close to the top of the water column as possible. Groundwater samples will be collected from the monitoring wells using low-flow purging and sampling techniques no earlier than seven days after well development to ensure that the aquifer is fully recovered,
- The surface water samples will be collected by dipping the sample bottles into the creek at each sampling station to fill the bottles. Sampling will begin at the most downstream location and proceed to the most upstream location to eliminate the effects of streambed disturbance on sample integrity.

If homogenized or split are checked please indicate how will it be done and the equipment needed.

- Duplicate samples of groundwater will be collected by dividing the bailer volumes or pumped water volumes (if low-flow sampling techniques used) into separate container sets.

If decontamination procedures differ from Appendix H, please provide details.

- Decontamination procedures will be performed in accordance with the procedures described in Appendix H.

Identify any equipment and support facilities needed. This may include such things as Fed-ex® to ship the samples, a Geoprobe®, field analysis done by another contractor (who must be certified), or electricity to run sampling equipment.

- CH2M field staff will transport samples directly to the shipping carrier (i.e., FedEx®) following standard chain-of-custody (CoC) procedures.

Address the actions to be taken when problems occur in the field, and the person responsible for taking corrective action and how the corrective action will be documented.

**Table 4A**  
*Field Corrective Action*

Failure	Response	Documentation	Individual Responsible
PID does not calibrate or malfunctions	Re-calibrate. Follow trouble-shooting guide in manual and contact rental company. If unable to calibrate and/or instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel
Groundwater multi-meter (pH, temperature, conductivity, redox)	Re-calibrate. Follow trouble-shooting guide in manual and contact rental company. If unable to calibrate and/or instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel
Interface Probe does not function properly	Following trouble-shooting guide in manual and contact rental company. If instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel
All remaining equipment	Re-calibrate. Follow trouble-shooting guide in manual and contact rental company. If unable to calibrate and/or instrument functions erratically return meter and obtain replacement meter.	Document in Field Notebook	Field personnel

## B3 Sample Handling and Custody

1. How will the samples get from the Site to the Lab to ensure holding requirements are met?
  - FedEx® or other overnight courier. Additionally, field staff may hand deliver samples to laboratory.
2. If sample preservation procedures differ from the UST Programmatic QAPP, please provide details.
  - No deviation from UST Programmatic QAPP.
3. If chain of custody procedures differ from the UST Programmatic QAPP, please provide details.
  - No deviation from UST Programmatic QAPP.

## B4 Analytical Methods

1. Identify the SOPs which will be used to analyze the samples, the method which the SOP references and the equipment or instrumentation that is needed:

**Table 5A**  
*Analytical SOPs and Referenced Methods*

Parameter	Method Referenced	Comments
<b>Soils</b>		
BTEX, naphthalene	EPA Method 8260B	
<b>Groundwater</b>		
BTEX	EPA Method 8260B	
Naphthalene		
MTBE		
1,2-DCA		
<b>Surface Water</b>		
BTEX, naphthalene	EPA Method 8260B	

\*This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.

2. Provide SOPs for the Kerr Method or the Ferrous Iron Method if these are parameters for this study. This can be attached or written here. If attached please note that it is an attachment and where it is located (if applicable).
  - Not applicable.

## B5 Quality Control Requirements:

All QC will follow the requirements laid out in Section B5 of the UST Programmatic QAPP. If procedures for QC differ from the UST Programmatic QAPP, please provide details.

## B6 Field Instrument and Equipment Testing, Inspection and Maintenance

1. Identify all field equipment needing periodic maintenance, the schedule for this, and the person responsible.

**Table 6A****Instrument and Equipment Maintenance**

Instrument	Serial Number	Type of Maintenance	Frequency	Person responsible
YSI Multi-meter or equivalent	TBD as equipment is rented	Ensure instrument is able to accurately correlate with calibration standards	Monthly	Vendor Equipment Manager (i.e., Pine Environmental)
Oil Water Interface Probe	TBD as equipment is rented	Ensure instrument is able to accurately correlate with calibration standards	Monthly	Vendor Equipment Manager (i.e., Pine Environmental)
PID	TBD as equipment is rented	Ensure instrument is able to accurately correlate with calibration standards	Monthly	Vendor Equipment Manager (i.e., Pine Environmental)

## B7 Instrument Calibration and Frequency

1. Identify equipment, tools, and instruments for field or lab work that should be calibrated and the frequency.
2. Describe how the calibrations should be performed and documented, indicating test criteria and standards or certified equipment.
3. Identify how deficiencies should be resolved and documented. Identify the person responsible for corrective action.

**Table 7A****Instrument Calibration Criteria and Corrective Action**

Instrument	Serial Number	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA
YSI Multi-meter or equivalent	TBD as equipment is rented	Procedures adheres to standards outlined in manual for instrument	Daily	Within 0.01 of calibration standard	Re-calibrate; then replace probes or instrument	Field personnel
Oil Water Interface Probe	TBD as equipment is rented	Procedures adheres to standards outlined in manual for instrument	Manufacturer calibration	Manufacturer calibration – accurate to 0.01-feet	Return to vendor than obtain replacement	Field personnel
PID	TBD as equipment is rented	Procedures adheres to standards outlined in manual for instrument	TBD per manufacturer recommendations	0.5 ppm	Re-calibrate; then replace lamp, filters or instrument	Field personnel

\* This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP.

## B8 Inspection/Acceptance Requirements for Supplies and Consumables

1. If procedures for storage, handling or transport of supplies/consumables differ from the UST Programmatic QAPP, please provide details.
  - No deviation from SCDHEC UST Programmatic QAPP.

## B9 Data Acquisition Requirements (Non-Direct Measurements)

1. Identify data sources, for example, computer databases or literature files, or models that should be accessed or used.
2. Describe the intended use of this information and the rationale for their selection, i.e.,
3. Provide its relevance to the project.
4. Indicate the justification criteria for use of these data sources and/or models.

**Table 8A**  
*Non-Direct Measurements*

Data Source	Used for	Relevance	Justification for use in this project	Comments
Tax Map and utility maps	Determine/verify property ownership and utility locations	Used to ensure contact property owners and obtain access to property – determine locations and depths of utilities	Site access and evaluate depth of utility with respect to hydrocarbons	
USGS and SCDHEC Databases	Obtain geologic information and water resource information	Understanding of site stratigraphy and well records	Evaluate local stratigraphy beneath site and obtain well construction details	

5. Identify key resources/support facilities needed.
  - Not applicable.

## B10 Data Management

1. Describe the data management scheme from field to final use and storage.
  - The samples collected will be recorded on the laboratory Chain-of-Custody (CoC) form as well as documented in the field logbook by the sample collection team. The samples and CoC will be relinquished to the laboratory following standard CoC methodology. Following analysis, the laboratory will perform internal data validation. The laboratory will issue a written report and submit an electronic copy to via email. The electronic copy will be stored on CH2M's computer network in a file dedicated to the Lewis Drive project.
2. How does the lab and field staff ensure that no unauthorized changes are made to the chain of custody, sampling notebooks, laboratory notebooks and computer records?
  - Documents will be noted with written or electronic signature and date/time stamp. A review of all written and electronic documents by a project team member who has been assigned this task by a project leadership member to ensure integrity of the project documents.
3. CoC forms, sampling notebooks and sample collection summary sheets will be completed in the field with indelible ink. Any changes to the CoC that is not marked through and initialed will be flagged by the laboratory and an inquiry will be made. The procedures for laboratory record keeping are included in the laboratory QAM which can be provided upon request.
  - Paper copies generated during field activities will be scanned and stored electronically on CH2M's networks that are backed up each day on to an off-site tape drive. All paper copies will be maintained in project files in a secure building with 24-hour, restricted access.
4. How does the lab ensure that there are no errors in samples records including times when sample information is compiled, data calculated and/or transmitted?
  - When the laboratory receives samples for analysis, a "Review of Sample Login" report is created by the sample custodian and is reviewed by the laboratory project manager (PM) for errors. If problems are encountered, the laboratory PM contacts the CH2M PM and a corrective action is agreed upon and then corrected by the laboratory PM.
5. How will the data be archived once the report is produced? How can it be retrieved? (This applies to both electronic and hard copies).
  - The laboratory will store readily available electronic copies online for two years through the laboratory's "My ESC" web link. After two years, the reports will be archived electronically on-site or off-site for an additional eight years. The archived reports can be retrieved by the laboratory through an IT request. Each project is given a unique number and is entered into an archive log to allow for retrieval. Hard copies are scanned in .pdf format and are stored electronically on the CH2M server with the same unique number as the hard copy.
  - CH2M assigns a unique project number to each project which is stored in sequential order by project number at the branch and are stored at a secure, restricted access location for a minimum of 5-years.

# Section C Assessment and Oversight

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## C1 Assessment and Response Actions

1. The Contractor is supposed to observe field personnel daily during sampling activities to ensure samples are collected and handled properly and report problems to DHEC within 24 hours. Please state who is responsible for doing this, what observations will be made, and how those observations will be made. Will this person have the authority to stop work if severe problems are seen?
  - All CH2M employees working on this project will verify that the samples are collected and handled properly. Additionally, all CH2M employees working on this project have the authority to stop work, report the problem and effect a correction that is agreed upon by the CH2M PM.
2. The SCDHEC UST QAPP states that the Laboratory will receive an Offsite Technical System Audit. For this project, what assessments will be done by the Contractor on the Commercial Lab(s) that are being used—other than their certification audit? When or how often are these done? Who will the results be given to and who has the ability to stop work if problems are severe?
  - The laboratory participates in semi-annual proficiency testing through an approved vendor, Phenova. The results of this proficiency testing are provided to the SCDHEC Office of Environmental Laboratory Certification. The laboratory is accredited by the SCDHEC Office of Environmental Laboratory Certification, and performs internal audits annually for each department in compliance with the laboratory's quality program.

## C2 Reports to Management

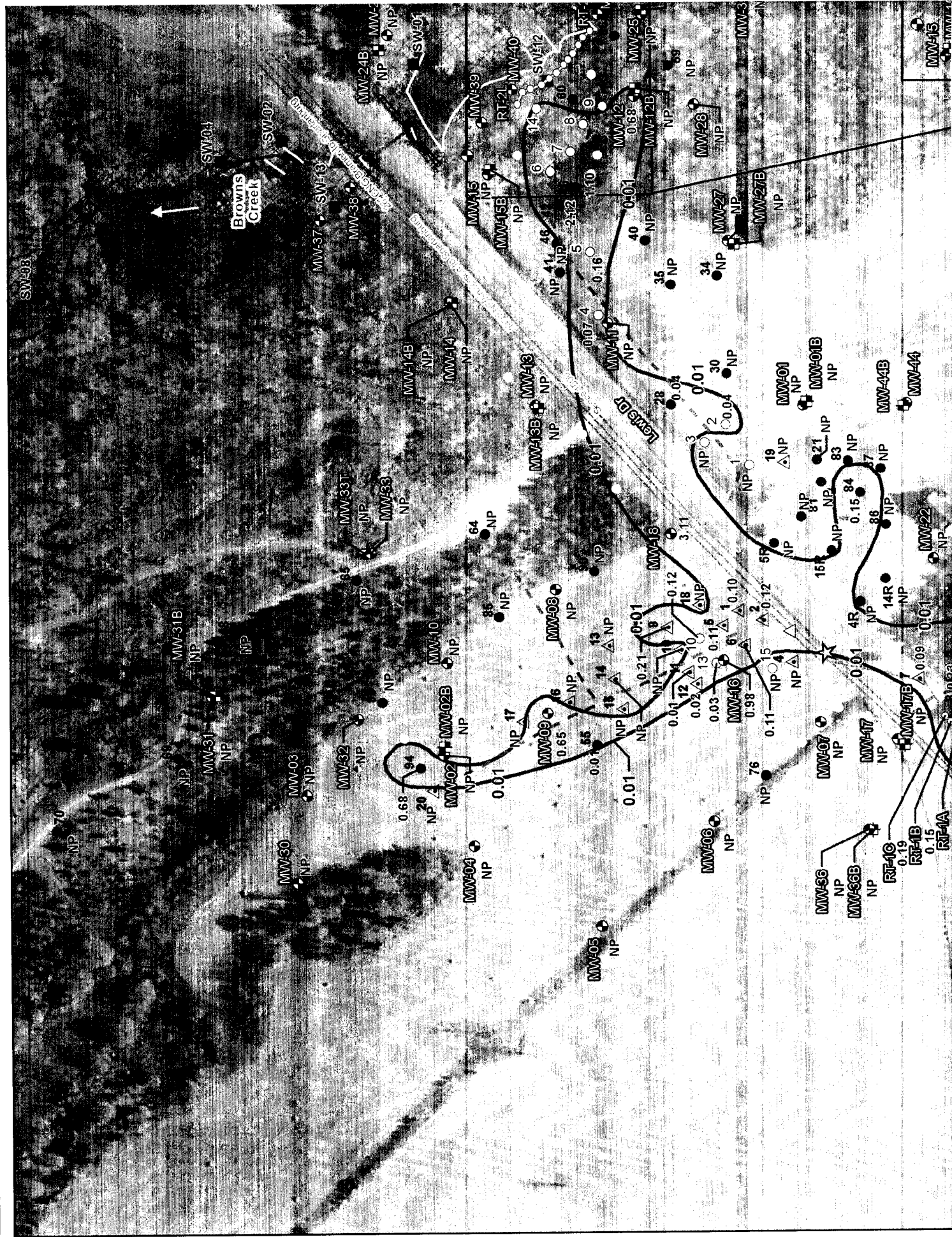
See the SCDHEC UST Programmatic QAPP (UST Master QAPP).

## Section D Data Validation and Usability

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See the SCDHEC UST Programmatic QAPP (UST Master QAPP).

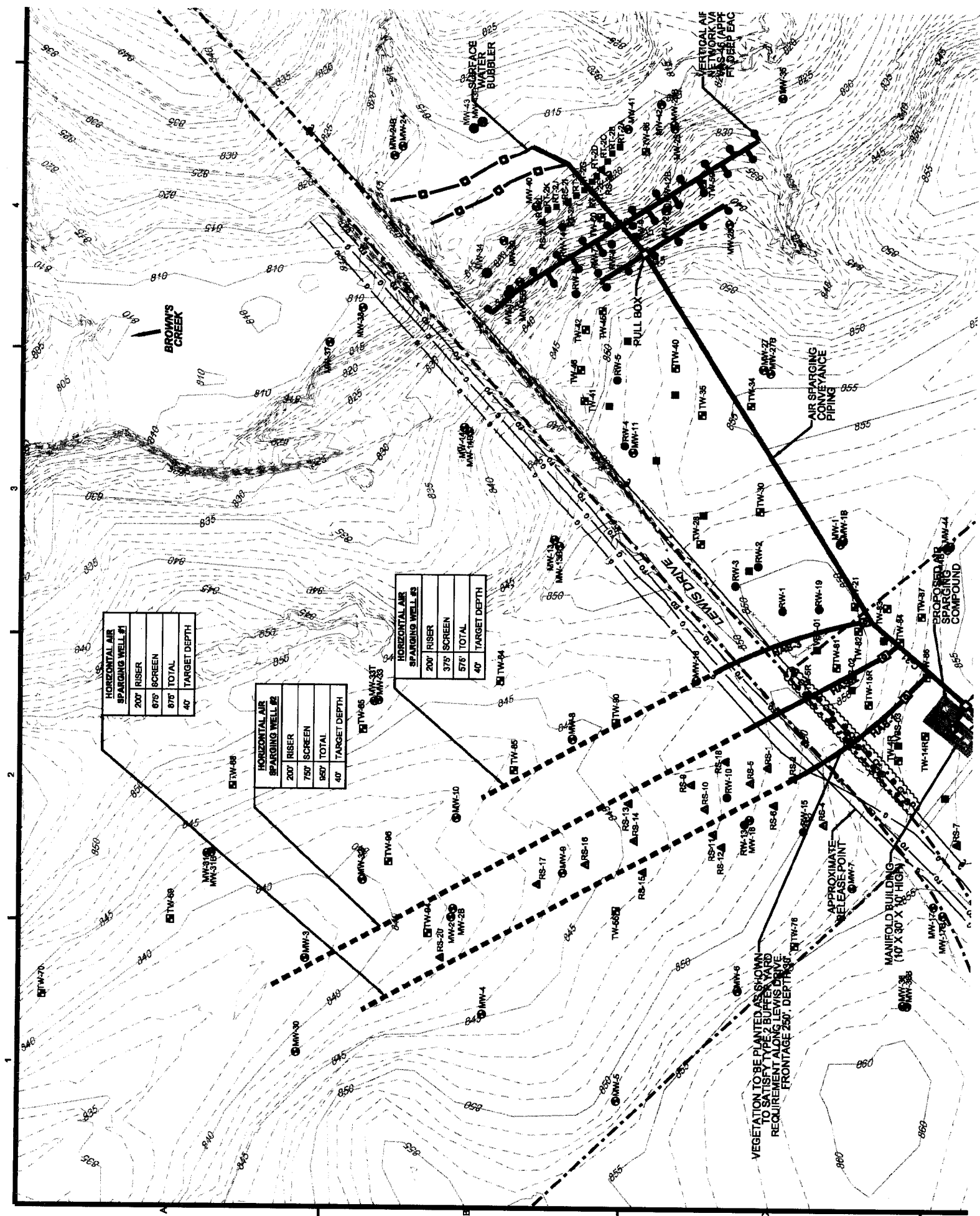


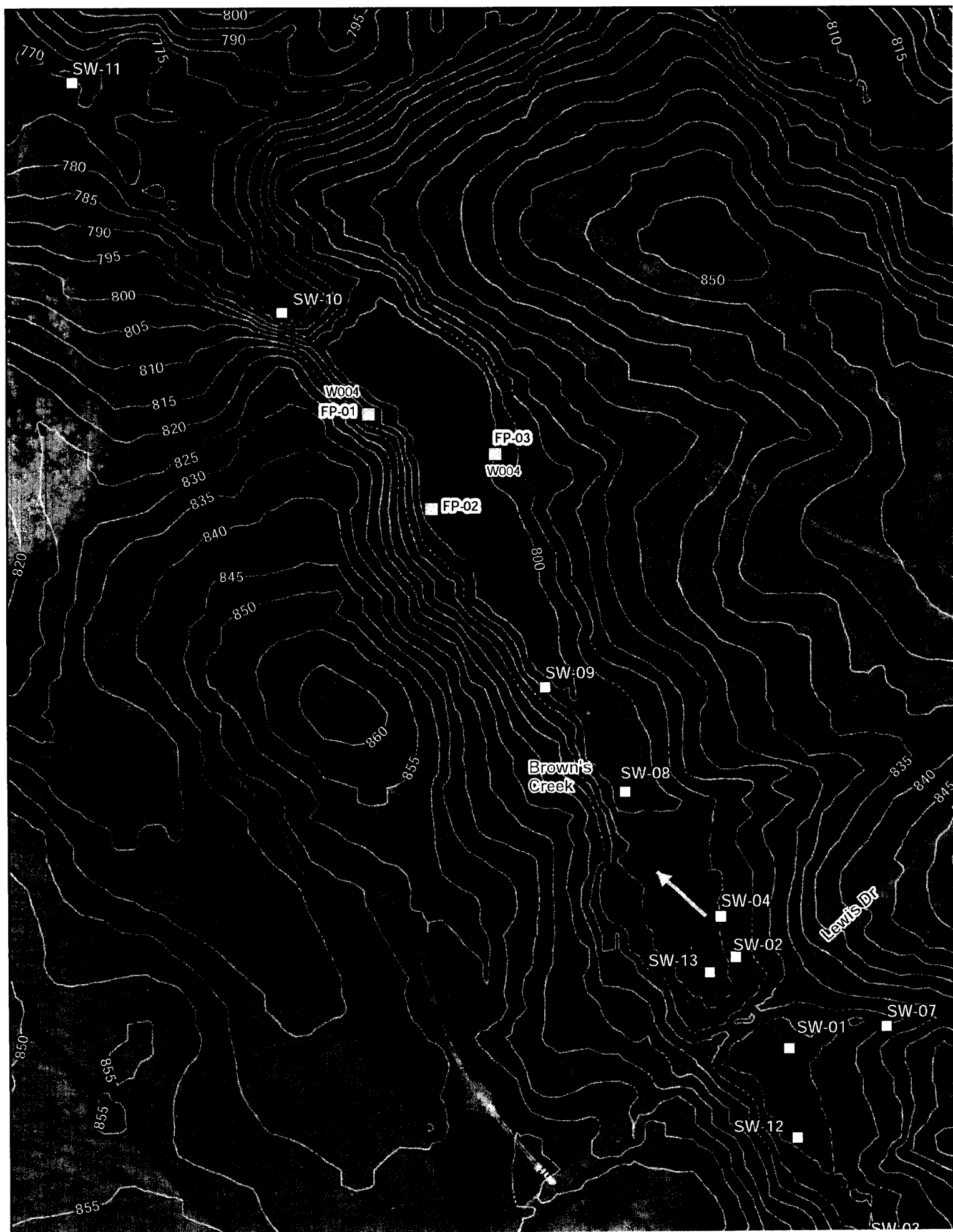


HORIZONTAL AIR SPARGING WELL #1				
200'	RISER			
875'	SCREEN			
875'	TOTAL			
40'	TARGET DEPTH			

HORIZONTAL AIR SPARGING WELL #2				
200'	RISER			
750'	SCREEN			
950'	TOTAL			
40'	TARGET DEPTH			

HORIZONTAL AIR SPARGING WELL #3				
200'	RISER			
375'	SCREEN			
575'	TOTAL			
40'	TARGET DEPTH			





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February 22, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
South Carolina Department of Health and Environmental Control (SCDHEC)  
Assessment Section, UST Management Division  
Bureau of Land and Waste Management  
2600 Bull Street  
Columbia, SC 29201

Subject: *Startup Plan for Surface Water Protection Measures - Revision 1*  
**Lewis Drive Remediation**  
Plantation Pipe Line Company  
Belton, South Carolina  
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared this revision to the *Startup Plan for Surface Water Protection Measures* submitted on February 10, 2017. This document describes the proposed injection and monitoring sequence to safely and effectively initiate operation of the recently constructed biosparging system at the site. The proposed initial flow rates are biosparging rates to limit volatilization of hydrocarbons. Air injection is planned to be gradually increased over time to optimize system performance. Monitoring will be conducted to evaluate system performance and will take various forms, including visual observations, field measurements, and analytical results.

## Air Monitoring

As detailed in the attached Air Monitoring Plan, two fixed air monitoring stations will be established at Brown's Creek and Cupboard Creek in order to monitor for and identify indications of potential vapor problems that may occur due to operation of the biosparging system. Mobile ambient air monitoring will also be performed in select areas along Brown's Creek and Cupboard Creek at and down-gradient of biosparging wells.

## Water Table Monitoring

Potential mounding of the water table will be monitored, in part, by four continuous water level data loggers (In Situ Rugged TROLL 100) installed in MW-12 and MW-15 near Brown's Creek, at MW-20 near Cupboard Creek, and MW-02 in the hayfield (the one in MW-2 will be used when operation of the horizontal biosparge wells is approved). Baseline gauging using an oil-water interface probe will be performed before startup (to establish baseline conditions). Then gauging will be performed daily during

Week 1 of the injection and weekly for the remainder of Month 1, as detailed in **Table 1** below. Dissolved oxygen (DO) will be measured at the end of Month 1 with an optical DO probe.

**Table 1. Water Table Monitoring Schedule**  
*Lewis Drive Remediation Site*

Location	Baseline	Twice/Day on Day 1	Daily for Week 1	Weekly for Month 1	End of Month 1
<i>Cupboard Creek</i>					
MW-19	WL	WL	WL	WL	WL, DO
MW-20*	WL	WL	WL	WL	WL, DO
MW-29	WL	WL	WL	WL	WL, DO
TW-67	WL	WL	WL	WL	WL, DO
TW-73	WL	WL	WL	WL	WL, DO
<i>Brown's Creek</i>					
MW-12*	WL	WL	WL	WL	WL, DO
MW-12B	WL	--	--	--	WL, DO
MW-15*	WL	WL	WL	WL	WL, DO
MW-15B	WL	--	--	--	WL, DO
MW-25	WL	WL	WL	WL	WL, DO
MW-25B	WL	--	--	--	WL, DO
MW-28	WL	WL	WL	WL	WL, DO
MW-35	WL	WL	WL**	WL	WL, DO
MW-39	WL	WL	WL**	WL	WL, DO
MW-41	WL	WL	WL**	WL	WL, DO
TW-59	WL	WL	WL	WL	WL, DO
TW-60	WL	WL	WL	WL	WL, DO
TW-66	WL	WL	WL	WL	WL, DO

**Notes:**

-- indicates that this does not apply.

WL = water level

DO = dissolved oxygen

\* Monitoring wells MW-02, MW-12, MW-15, and MW-20 will have dedicated loggers (TROLL 100) for continuous water level logging.

\*\* Monitoring wells MW-35, MW-39, and MW-41 will be gauged daily for 2 weeks, after which the gauging frequency will be reevaluated.

## Analytical Monitoring of Groundwater

Groundwater samples will be collected weekly during startup from the 24 monitoring wells listed in **Table 2** below. These locations are also depicted on **Figure 1**. Per approval from SCDHEC, samples will be collected using no-purge HydraSleeve samplers. However, if there is not sufficient depth of water column in the well for HydraSleeve sampling (16 inches of water column is typically required), the groundwater must be sampled using low-flow purge sampling. Samples will be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary butyl ether (MTBE), 1,2-dichloroethane (1,2-DCA), and naphthalene by Environmental Protection Agency (EPA) Methods 8011 and 8260B. Samples will be collected in accordance with a revised Quality Assurance Project Plan (QAPP) to be submitted to SCDHEC under separate cover.

**Table 2. Analytical Groundwater Monitoring Schedule**

*Lewis Drive Remediation Site*

Brown's Creek Monitoring Wells		Cupboard Creek monitoring wells	
MW-12	MW-34 (to be installed)	MW-19	MW-26
MW-12B	MW-35	MW-20	MW-26B
MW-15	MW-38	MW-21	MW-29
MW-15B	MW-39	MW-23	MW-45
MW-25	MW-40	MW-23B	MW-45B
MW-25B	MW-41	MW-17	
MW-28	MW-42	MW-17B	

## Analytical Monitoring of Surface Water

Surface water samples will be collected from all surface water sampling locations at the site weekly during startup. Samples will be collected in accordance with the QAPP and analyzed for BTEX and naphthalene by EPA Method 8260B.

## Startup Sequence

The proposed sequence for startup operations is as follows:

### Week 1

- The sparging system operator-in-charge (OIC) will initiate one of the two Sullair compressors and open valves in manifold legs for the two stream bubblers and for the 45 vertical sparging wells. Low flow rates of 1 standard cubic foot per minute (scfm) per sparge well/surface water aerator have been selected to build up the assimilative capacity of the vadose zone and to minimize water table mounding and vapor generation. The stream aerators will run 24/7. A pulsing sequence in the vertical sparge well network of 6 hours per injection row will be used to treat from "outside-in", i.e., inject for 6 hours into the most downgradient injection row at Brown's Creek/Cupboard Creek, then inject for 6 hours into the next upgradient row, then inject for 6 hours into the most upgradient row, and then re-initiate the cycle.
- Surface water will be monitored daily for potential disturbances from aerators. If any sustained disturbance beyond bubbling of air (e.g., increased turbidity) is observed, the OIC will reduce the flow rate and should disturbances continue, ultimately cease injections.
- Ambient air monitoring will be performed daily with a handheld photoionization detector (PID), in particular the areas around MW-19, MW-40, and MW-09, and also the City of Belton water branch line valve to the former residence at 112 Lewis Drive, per the previously submitted Corrective Action Plan (CAP) (September 2016).
- Product recovery will continue on a twice per week basis.
- Fixed air monitoring station data will be logged continually and downloaded twice per week. Fixed air monitoring station data will be evaluated per the attached Air Monitoring Plan.
- Daily water table monitoring will be performed as described above and detailed in **Table 1**.
- Data from TROLLs will be downloaded at the end of Week 1.
- Groundwater and surface water samples will be collected once in Week 1 as described above and detailed in **Table 2**.

## Week 2

- Starting week 2, the OIC of the system will increase flows from 1 to 2 scfm for each vertical sparging well and surface water aerator, maintaining the same pulsing schedule in the vertical sparge wells as before (assuming no adverse conditions were observed) and continuing to run the aerators 24/7.
- Surface water and ambient air monitoring will be performed daily as above. Fixed air monitoring station data will continue to be downloaded twice weekly.
- Water table monitoring will be performed once weekly as described above and detailed in **Table 1**.
- Data from TROLLs will be downloaded at the end of Week 2.
- Groundwater and surface water samples will be collected once in Week 1 as described above and detailed in Table 2.

## Week 3

- Week 3 will essentially be a repeat of Week 2. The injection flow rate in the vertical sparging wells and surface water aerators will increase to 3 scfm each, and CH2M will continue to monitor surface water, groundwater, ambient air, etc. as described for Weeks 1 and 2.

## Week 4

- Week 4 will be the same as previous weeks, with the addition of enhanced monitoring for influence from the system. The injection sequence will increase to 4 scfm for each vertical sparging well and surface water aerator, and CH2M will continue to monitor surface water, groundwater, ambient air, etc.
- In addition, the CAP requires monthly site visual checks for evidence of a petroleum sheen on surface waters, odors in the area, and/or distressed vegetation. Visual inspections will be conducted within the area of the site and specifically along the usual 3,000-foot section of Brown's Creek and 600-foot section of Cupboard Creek.
- Finally, after completion of the first month, staff will measure DO with an optical probe in select wells to assess the effects of sparging. These measurements will be conducted while the system remains operational to better assess the potential zone of influence.

# Reporting

Data transmittals consisting of field data sheets, lab reports (including chains of custody), summary tables, and figures will be provided to SCDHEC on a weekly basis as soon as analytical data are received and evaluated.



If you have any further questions or concerns, please call me at 919-760-1777, Mr. Scott Powell/CH2M at 678-530-4457, or Mr. Jerry Aycock/Plantation at 770-751-4165.

Regards,  
CH2M HILL Engineers, Inc.



William M. Waldron, P.E.  
Senior Project Manager

Enclosures:

Figure 1 – Weekly Groundwater Sampling Locations During Startup  
Air Monitoring Plan

cc: Jerry Aycock, Plantation (Digital, Jerry\_Aycock@kindermorgan.com)  
Mary Clair Lyons, Esq., Plantation (Digital, Mary\_Lyons@kindermorgan.com)  
Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC (Digital, rmorton@wcsr.com)  
File

Figure

”



# Attachment – Air Monitoring Plan

# Air Monitoring Plan

## Lewis Drive Remediation, Belton, South Carolina

This Plan presents the Vapor Monitoring Plan for the Lewis Drive site (The Site) in Belton, South Carolina. The plan was prepared on behalf of Plantation Pipe Line Company (Plantation) by CH2M Engineers, Inc. (CH2M).

## Background

On December 8, 2014 a gasoline release was discovered from Plantation's 26-inch product pipeline near Lewis Drive in Belton, South Carolina. Plantation performed initial response actions from December 8, 2014 through February 2, 2015. An Interim Corrective Action Plan (CAP) was submitted to SCDHEC on March 5, 2015 and a Site Assessment Report was submitted to DHEC on September 9, 2015. A site wide CAP was submitted to SCDHEC on September 1, 2016.

A biosparging remedial system was constructed at the Site to treat the gasoline release. System construction is nearly complete. System shakedown and startup is scheduled for February 2017.

## Air Monitoring Plan

Air monitoring will be performed to identify indications of vapor problems that are due to operation of the biosparging system. The goal is to show that startup and operation of the biosparging system is being performed in a manner that does not adversely affect nearby receptors by producing excessive vapors. Excessive vapors would be considered 5 parts per million (ppm) VOCs on the perimeter of the site area or in the vicinity of any of the roads running through the site.

Monitoring for vapors generated by biosparging will be performed through use of fixed air monitoring stations and mobile ambient air monitoring. Descriptions of these two air monitoring techniques and the schedule for air monitoring using each technique are provided in the following sections.

### Fixed Air Monitoring Stations

Two fixed air monitoring stations will be established at the site. One air monitoring station will be established immediately above biosparging wells at Brown's Creek and a second station will be established immediately above biosparging wells at Cupboard Creek. The locations of these two proposed air monitoring stations are shown on **Figure 1**.

Each air monitoring stations will consist of a MiniRae photoionization detector (PID) and explosive atmosphere meter in a Pelican Case enclosure. A cut sheet for the MiniRae is attached. The MiniRae PID measures volatile organic compounds (VOCs) and hydrogen sulfide in air at concentrations from 0 to 15,000 ppm. The PID will be programmed to log VOC concentration at 10 minute intervals. Although the PID can capture more than 59 months of data when logging at 10-minute intervals, the data will be downloaded at routine intervals and reviewed.

The PID will be placed in a Pelican Case for protection from elements and weather. The Pelican Case will be attached to a tree or other fixed object at an elevation between 3 and 6 feet above ground surface (the breathing zone).

Prior to deployment each PID will be turned on, allowed to reach ambient operating temperature, and then calibrated in accordance with manufacturer's instructions. Canisters of 1 ppm hydrogen sulfide and 10 ppm isobutylene calibration gas will be used to calibrate the PID to achieve measurement confidence in the range of 0.1 to 0.5 ppm. A calibration log will be maintained for each instrument.

The MiniRae nominal battery life is between 12 and 16 hours. MiniRaes deployed in fixed air monitoring stations will be connected to a marine battery, which extends the operational period to one week.

Fixed air monitoring stations will be deployed and operating for a minimum of 96 hours prior to operating the biosparging system. Logged data will be downloaded at the following frequencies:

- Daily during the first week of biosparging system operation,
- Three times per week during the second and third weeks of biosparging system operation
- Twice per week during the fourth week of biosparging system operation

If air monitoring results indicate that startup and operation of the biosparging system is being performed in a manner that does not adversely affect nearby receptors by producing vapors or odors, then the fixed air monitoring stations will be demobilized after a month of data collection.

## Mobile Ambient Air Monitoring

Mobile ambient air monitoring will be performed in select areas along Brown's Creek and Cupboard Creek at and down-gradient of biosparging wells. These areas are identified on **Figure 1**.

Mobile ambient air monitoring will consist of a person walking through the area looking for indications of biosparging causing vapors to emanate at ground surface, for hydrocarbon sheens on surface water, and for odors. The person will use a PID to monitor for VOCs at the following locations:

- Surface water sampling locations (SW-03, SW-06, SW-12)
- Where the creek passes under Lewis Drive
- General area of the 45 vertical biosparge wells

At each location, a reading will be taken once the PID readout has stabilized, or after 3 minutes, whichever is sooner. Ambient air monitoring results will be maintained in a logbook or on data sheets. Ambient air monitoring will be performed for a minimum of 96 hours prior to operating the biosparging system. After startup of the biosparging system, the frequency of ambient air monitoring will be:

- Daily during the first week of biosparging system operation
- Three times per week until one week after the maximum desired air flow has been achieved in the biosparging system (anticipated to be a month after startup)
- Monthly for the second and third months of biosparging system operation
- Quarterly thereafter when the biosparging system is operating

The frequency of air monitoring will reset if there are major changes to biosparging system operation, or after a prolonged period (e.g. more than two months) when the system is not operated.

## Air Monitoring Reporting

Results of air monitoring will be provided to SCDHEC in data submittals weekly for the first month, monthly for the next two months, and quarterly thereafter. Data submittals will consist of a brief narrative addressing the monitoring period, type of data collected, map with sampling station locations, and tables of results. Quarterly reports will provide a discussion of the results and recommendations for warranted changes to the monitoring plan.

Data submittals will be provided at the following frequency:

- Weekly emails during the first month of air monitoring
- Monthly emails during the second and third months of air monitoring

Quarterly reports will be provided to SCDHEC within one month following the end of the air monitoring period covered by the report.

## Response to Detections

The response to detections of VOCs or hydrogen sulfide in air will depend on the nature, magnitude, and relative location of the detection.

If VOCs are detected by air monitoring at locations above biosparging wells will be responded to by shutting off or decreasing the air flow rate to wells. Supplemental air monitoring results at the same location will be reviewed to verify that the reduced air flow to biosparging wells eliminates the VOC detections.

If VOCs are detected at locations away from biosparging wells, observations will be made to search for indications of air discharges at ground surface or other sources of the VOCs. The specific response to these potential VOC sources will be developed based on conditions encountered in the field.



# MiniRAE 3000

Portable Handheld VOC Monitor



The MiniRAE 3000 is a comprehensive handheld VOC (Volatile Organic Compound) monitor that uses a third-generation patented PID technology to accurately measure more ionizable chemicals than any other device on the market. It provides full-range measurement from 0 to 15,000 ppm of VOCs.

The MiniRAE 3000 has a built-in wireless modem that allows real-time data connectivity with the ProRAE Guardian command center located up to 2 miles (3 km) away through a Bluetooth connection to a RAELink 3\* portable modem or optionally via Mesh Network.

## KEY FEATURES

- Third-generation patented PID technology
- VOC detection range from 0 to 15,000 ppm
- 3-second response time
- Humidity compensation with built-in humidity and temperature sensors
- Six-month datalogging
- Real-time wireless built-in – Bluetooth (and optional RAELink3 portable modem) or Mesh Network support
- Large graphic display with integrated flashlight
- Multi-language support with 10 languages encoded
- IP-67 waterproof design

## APPLICATIONS

- Oil and Gas
- HazMat
- Industrial Safety
- Civil Defense
- Environmental and Indoor Air Quality

- Highly accurate VOC measurements
- Patented PID sensor
- Low maintenance—easy access to lamp and sensor
- Low cost of ownership
- 3-year 10.6eV lamp warranty



Workers can quickly measure VOCs and wirelessly transmit data via Bluetooth or optional Mesh radio.

\*RAELink 3 modem is sold separately





# MiniRAE 3000

Portable Handheld VOC Monitor



## SPECIFICATIONS

### Instrument Specifications

Size	10" L x 3.0" W x 2.5" H (25.5 cm x 7.6 cm x 6.4 cm)
Weight	26 oz (733 g)
Sensors	Photoionization sensor with standard 10.6 eV or optional 9.8 eV or 11.7 eV lamp
Battery	<ul style="list-style-type: none"><li>• Rechargeable, external, field replaceable Lithium Ion battery pack</li><li>• Alkaline battery adapter</li></ul>
Running time	16 hours of operation (12 hours with alkaline battery adapter)
Display Graphic	4 lines, 28 x 43 mm, with LED backlight for enhanced display readability
Keypad	1 operation and 2 programming keys, 1 flashlight on/off
Direct Readout	Instantaneous reading <ul style="list-style-type: none"><li>• VOCs as ppm by volume (mg/m<sup>3</sup>)</li><li>• High values</li><li>• STEL and TWA</li><li>• Battery and shutdown voltage</li><li>• Date, time, temperature</li></ul>
Alarms	95dB at 12" (30 cm) buzzer and flashing red LED to indicate exceeded preset limits <ul style="list-style-type: none"><li>• High: 3 beeps and flashes per second</li><li>• Low: 2 beeps and flashes per second</li><li>• STEL and TWA: 1 beep and flash per second</li><li>• Alarms latching with manual override or automatic reset</li><li>• Additional diagnostic alarm and display message for low battery and pump stall</li></ul>
EMC/RFI	Compliant with EMC directive (2004/108/EC) EMI and ESD test: 100MHz to 1GHz 30V/m, no alarm Contact: ±4kV Air: ±8kV, no alarm
IP Rating	<ul style="list-style-type: none"><li>• IP-67 unit off and without flexible probe</li><li>• IP-65 unit running</li></ul>
Datalogging	Standard 6 months at one-minute intervals
Calibration	Two-point or three-point calibration for zero and span Calibration memory for 8 calibration gases, alarm limits, span values and calibration dates
Sampling Pump	<ul style="list-style-type: none"><li>• Internal, integrated flow rate at 500 cc/min</li><li>• Sample from 100' (30m) horizontally or vertically</li></ul>
Low Flow Alarm	Auto pump shutoff at low-flow condition
Communication & Data Download	<ul style="list-style-type: none"><li>• Download data and upload instrument set-up from PC through charging cradle or optional Bluetooth™</li><li>• Wireless data transmission through built-in RF modem</li></ul>
Wireless Network	Mesh RAE Systems Dedicated Wireless Network
Wireless Range (Typical)	EchoView Host: LOS > 660 ft (200 m) ProRAE Guardian & RAEMesh Reader: LOS > 660 ft (200 m) ProRAE Guardian & RAELink3 Mesh: LOS > 330 ft (100 m)
Safety Certifications	US and Canada: CSA, Classified as Intrinsically Safe for use in Class I, Division 1 Groups A, B, C, D Europe: ATEX II 2G EEx a IIC T4
Temperature	-4° to 122° F (-20° to 50° C)
Humidity	0% to 95% relative humidity (non-condensing)

Contact RAE Systems for country-specific wireless approvals and certificates  
Specifications are subject to change

Attachments	Durable bright yellow rubber boot
Warranty	3 years for 10.6 eV lamp, 1 year for pump, battery, sensor and instrument
Wireless Frequency	ISM license-free band, IEEE 802.15.4 Sub 1GHz
Wireless Approvals	FCC Part 15, CE R&TTE, Others <sup>1</sup>
Radio Module	Supports Bluetooth or RM990

### Sensor Specifications

Gas Monitor	Range	Resolution	Response Time T90
VOCs	0 to 999.9 ppm 1,000 to 15,000 ppm	0.1 ppm 1 ppm	< 3 s < 3 s

### MONITOR ONLY INCLUDES:

- MiniRAE 3000 Monitor, Model PGM-7320
- Wireless communication module built in, as specified
- Datalogging with ProRAE Studio II Package
- Charging/download adapter
- RAE UV lamp, as specified
- Flex-I-Probe™
- External filter
- Rubber boot
- Alkaline battery adapter
- Lamp-cleaning kit
- Tool kit
- Operation CD-ROM
- Operation and Maintenance manual
- Soft leather case

### OPTIONAL CALIBRATION KIT ADDS:

- 100 ppm isobutylene calibration gas, 34L
- Calibration regulator and flow controller

### OPTIONAL GUARANTEED COST-OF-OWNERSHIP PROGRAM:

- 4-year repair and replacement guarantee
- Annual maintenance service

#### CORPORATE HEADQUARTERS

**RAE Systems by Honeywell**  
3775 North First Street  
San Jose, CA 95134 USA  
RAE-InsideSales@honeywell.com  
DS-1018-05 02/16

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**Middle East** +971.4.450.5852  
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February 23, 2017

*Delivered via FedEx Overnight Delivery*

Ms. Bobbi Coleman  
 South Carolina Department of Health and Environmental Control (SCDHEC)  
 Assessment Section, UST Management Division  
 Bureau of Land and Waste Management  
 2600 Bull Street  
 Columbia, SC 29201

Subject: *Startup Plan for Surface Water Protection Measures - Revision 2*  
**Lewis Drive Remediation**  
 Plantation Pipe Line Company  
 Belton, South Carolina  
 Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M) has prepared this revision to the *Startup Plan for Surface Water Protection Measures* submitted on February 10, 2017. This document describes the proposed injection and monitoring sequence to safely and effectively initiate operation of the recently constructed biosparging system at the site. The proposed initial flow rates are biosparging rates to limit volatilization of hydrocarbons. Air injection is planned to be gradually increased over time to optimize system performance. Monitoring will be conducted to evaluate system performance and will take various forms, including visual observations, field measurements, and analytical results.

## Air Monitoring

As detailed in the attached Air Monitoring Plan, two fixed air monitoring stations will be established at Brown's Creek and Cupboard Creek in order to monitor for and identify indications of potential vapor problems that may occur due to operation of the biosparging system. Mobile ambient air monitoring will also be performed in select areas along Brown's Creek and Cupboard Creek at and down-gradient of biosparging wells.

## Water Table and Product Monitoring

Potential mounding of the water table will be monitored, in part, by four continuous water level data loggers (In Situ Rugged TROLL 100) installed in MW-12 and MW-15 near Brown's Creek, at MW-20 near Cupboard Creek, and MW-02. Baseline gauging using an oil-water interface probe will be performed before startup (to establish baseline conditions). Then gauging will be performed daily during Week 1 of the injection and weekly for the remainder of Month 1, as detailed in **Table 1** below. Dissolved oxygen (DO) will be measured at the end of Month 1 with an optical DO probe.

**Table 1. Water Table and Product Monitoring Schedule**  
*Lewis Drive Remediation Site*

Location	Baseline	Twice/Day on Day 1	Daily for Week 1	Weekly for Month 1	End of Month 1
<i>Cupboard Creek</i>					
MW-19	WL	WL	WL	WL	WL, DO
MW-20*	WL	WL	WL	WL	WL, DO
MW-29	WL	WL	WL	WL	WL, DO
TW-67	WL	WL	WL	WL	WL, DO
TW-73	WL	WL	WL	WL	WL, DO
<i>Brown's Creek</i>					
MW-12*	WL	WL	WL	WL	WL, DO
MW-12B	WL	--	--	--	WL, DO
MW-15*	WL	WL	WL	WL	WL, DO
MW-15B	WL	--	--	--	WL, DO
MW-25	WL	WL	WL	WL	WL, DO
MW-25B	WL	--	--	--	WL, DO
MW-28	WL	WL	WL	WL	WL, DO
MW-35	WL	WL	WL**	WL	WL, DO
MW-39	WL	WL	WL**	WL	WL, DO
MW-41	WL	WL	WL**	WL	WL, DO
TW-59	WL	WL	WL	WL	WL, DO
TW-60	WL	WL	WL	WL	WL, DO
TW-66	WL	WL	WL	WL	WL, DO

**Notes:**

-- indicates that this does not apply.

WL = water level and product gauging

DO = dissolved oxygen

\* Monitoring wells MW-02, MW-12, MW-15, and MW-20 will have dedicated loggers (TROLL 100) for continuous water level logging.

\*\* Monitoring wells MW-35, MW-39, and MW-41 will be gauged daily for 2 weeks, after which the gauging frequency will be reevaluated.

## Analytical Monitoring of Groundwater

Groundwater samples will be collected weekly during startup from the 24 monitoring wells listed in **Table 2** below. These locations are also depicted on **Figure 1**. Per approval from SCDHEC, samples will be collected using no-purge HydraSleeve samplers. However, if there is not sufficient depth of water column in the well for HydraSleeve sampling (16 inches of water column is typically required), the groundwater must be sampled using low-flow purge sampling. Samples will be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tertiary butyl ether (MTBE), 1,2-dichloroethane (1,2-DCA), and naphthalene by Environmental Protection Agency (EPA) Methods 8011 and 8260B. Samples will be collected in accordance with a revised Quality Assurance Project Plan (QAPP) to be submitted to SCDHEC under separate cover.

**Table 2. Analytical Groundwater Monitoring Schedule**  
*Lewis Drive Remediation Site*

Brown's Creek Monitoring Wells		Cupboard Creek monitoring wells	
MW-12	MW-34 (to be installed)	MW-19	MW-26
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MW-15B	MW-39	MW-23	MW-45
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MW-25B	MW-41	MW-17	
MW-28	MW-42	MW-17B	

## Analytical Monitoring of Surface Water

Surface water samples will be collected from all surface water sampling locations at the site weekly during startup. Samples will be collected in accordance with the QAPP and analyzed for BTEX and naphthalene by EPA Method 8260B.

## Startup Sequence

The proposed sequence for startup operations is as follows:

### Week 1

- The sparging system operator-in-charge (OIC) will initiate one of the two Sullair compressors and open valves in manifold legs for the two stream bubblers and for the 45 vertical sparging wells. Low flow rates of 1 standard cubic foot per minute (scfm) per sparge well/surface water aerator have been selected to build up the assimilative capacity of the vadose zone and to minimize water table mounding and vapor generation. The stream aerators will run 24/7. A pulsing sequence in the vertical sparge well network of 6 hours per injection row will be used to treat from "outside-in", i.e., inject for 6 hours into the most downgradient injection row at Brown's Creek/Cupboard Creek, then inject for 6 hours into the next upgradient row, then inject for 6 hours into the most upgradient row, and then re-initiate the cycle.
- Surface water will be monitored daily for potential disturbances from aerators. If any sustained disturbance beyond bubbling of air (e.g., increased turbidity) is observed, the OIC will reduce the flow rate and should disturbances continue, ultimately cease injections.
- Ambient air monitoring will be performed daily with a handheld photoionization detector (PID), in particular the areas around MW-19, MW-40, and MW-09, and also the City of Belton water branch line valve to the former residence at 112 Lewis Drive.
- Product recovery will continue on a twice per week basis.
- Fixed air monitoring station data will be logged continually and downloaded twice per week. Fixed air monitoring station data will be evaluated per the attached Air Monitoring Plan.
- Daily water table monitoring will be performed as described above and detailed in **Table 1**.
- Data from TROLLs will be downloaded at the end of Week 1.
- Groundwater and surface water samples will be collected once in Week 1 as described above and detailed in Table 2.

- Visual inspections will be performed weekly for evidence of a petroleum sheen on surface waters, odors in the area, and/or distressed vegetation or biota on all areas of the site, including along Brown's Creek and Cupboard Creek. If any of these are detected which have not been previously reported, the consultant project manager will be notified immediately by phone. A description of the observation, the time it occurred, its location, and any response actions taken will be included in regular reports to SCDHEC according to the reporting schedule described below.

## Week 2

- Starting week 2, the OIC of the system will increase flows from 1 to 2 scfm for each vertical sparging well and surface water aerator, maintaining the same pulsing schedule in the vertical sparge wells as before (assuming no adverse conditions were observed) and continuing to run the aerators 24/7.
- Surface water and ambient air monitoring will be performed daily as above. Fixed air monitoring station data will continue to be downloaded twice weekly.
- Water table and product monitoring will be performed once weekly as described above and detailed in **Table 1**.
- Data from TROLLs will be downloaded at the end of Week 2.
- Groundwater and surface water samples will be collected once in Week 2 as described above and detailed in Table 2.
- Visual inspections will be performed weekly as described above.

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- Week 3 will essentially be a repeat of Week 2. The injection flow rate in the vertical sparging wells and surface water aerators will increase to 3 scfm each, and CH2M will continue to monitor surface water, groundwater, and ambient air, and conduct visual inspections as described for Weeks 1 and 2.

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- Week 4 will be the same as previous weeks, with the addition of enhanced monitoring for influence from the system. The injection sequence will increase to 4 scfm for each vertical sparging well and surface water aerator, and CH2M will continue to monitor surface water, groundwater, and ambient air and conduct visual inspections as described for Weeks 1 and 2.
- Finally, after completion of the first month, staff will measure DO with an optical probe in select wells to assess the effects of sparging. These measurements will be conducted while the system remains operational to better assess the potential zone of influence.

# Reporting

Data transmittals consisting of field data sheets (including observations out of the norm), lab reports (including chains of custody), summary tables, and figures will be provided to SCDHEC on a weekly basis as soon as analytical data are received and evaluated. Data transmittals will be by e-mail and followed up by hardcopy.

If you have any further questions or concerns, please call me at 919-760-1777, Mr. Scott Powell/CH2M at 678-530-4457, or Mr. Jerry Aycock/Plantation at 770-751-4165.

Regards,  
CH2M HILL Engineers, Inc.



William M. Waldron, P.E.  
Senior Project Manager

Enclosures:

Figure 1 – Weekly Groundwater Sampling Locations During Startup  
Air Monitoring Plan

cc: Jerry Aycock, Plantation (Digital, Jerry\_Aycock@kindermorgan.com)  
Mary Clair Lyons, Esq., Plantation (Digital, Mary\_Lyons@kindermorgan.com)  
Richard Morton, Esq., Womble Carlyle Sandridge & Rice, PLLC (Digital, rmorton@wcsr.com)  
File

”

Figure





## Attachment – Air Monitoring Plan

# Air Monitoring Plan

## Lewis Drive Remediation, Belton, South Carolina

This Plan presents the Vapor Monitoring Plan for the Lewis Drive site (The Site) in Belton, South Carolina. The plan was prepared on behalf of Plantation Pipe Line Company (Plantation) by CH2M Engineers, Inc. (CH2M).

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A biosparging remedial system was constructed at the Site to treat the gasoline release. System construction is nearly complete. System shakedown and startup is scheduled for February 2017.

## Air Monitoring Plan

Air monitoring will be performed to identify indications of vapor problems that are due to operation of the biosparging system. The goal is to show that startup and operation of the biosparging system is being performed in a manner that does not adversely affect nearby receptors by producing excessive vapors. Excessive vapors would be considered 5 parts per million (ppm) VOCs on the perimeter of the site area or in the vicinity of any of the roads running through the site.

Monitoring for vapors generated by biosparging will be performed through use of fixed air monitoring stations and mobile ambient air monitoring. Descriptions of these two air monitoring techniques and the schedule for air monitoring using each technique are provided in the following sections.

### Fixed Air Monitoring Stations

Two fixed air monitoring stations will be established at the site. One air monitoring station will be established immediately above biosparging wells at Brown's Creek and a second station will be established immediately above biosparging wells at Cupboard Creek. The locations of these two proposed air monitoring stations are shown on **Figure 1**.

Each air monitoring stations will consist of a MiniRae photoionization detector (PID) and explosive atmosphere meter in a Pelican Case enclosure. A cut sheet for the MiniRae is attached. The MiniRae PID measures volatile organic compounds (VOCs) and hydrogen sulfide in air at concentrations from 0 to 15,000 ppm. The PID will be programmed to log VOC concentration at 10 minute intervals. Although the PID can capture more than 59 months of data when logging at 10-minute intervals, the data will be downloaded at routine intervals and reviewed.

The PID will be placed in a Pelican Case for protection from elements and weather. The Pelican Case will be attached to a tree or other fixed object at an elevation between 3 and 6 feet above ground surface (the breathing zone).

Prior to deployment each PID will be turned on, allowed to reach ambient operating temperature, and then calibrated in accordance with manufacturer's instructions. Canisters of 1 ppm hydrogen sulfide and 10 ppm isobutylene calibration gas will be used to calibrate the PID to achieve measurement confidence in the range of 0.1 to 0.5 ppm. A calibration log will be maintained for each instrument.

The MiniRae nominal battery life is between 12 and 16 hours. MiniRaes deployed in fixed air monitoring stations will be connected to a marine battery, which extends the operational period to one week.

Fixed air monitoring stations will be deployed and operating for a minimum of 96 hours prior to operating the biosparging system. Logged data will be downloaded at the following frequencies:

- Daily during the first week of biosparging system operation,
- Three times per week during the second and third weeks of biosparging system operation
- Twice per week during the fourth week of biosparging system operation

If air monitoring results indicate that startup and operation of the biosparging system is being performed in a manner that does not adversely affect nearby receptors by producing vapors or odors, then the fixed air monitoring stations will be demobilized after a month of data collection.

## Mobile Ambient Air Monitoring

Mobile ambient air monitoring will be performed in select areas along Brown's Creek and Cupboard Creek at and down-gradient of biosparging wells. These areas are identified on **Figure 1**.

Mobile ambient air monitoring will consist of a person walking through the area looking for indications of biosparging causing vapors to emanate at ground surface, for hydrocarbon sheens on surface water, and for odors. The person will use a PID to monitor for VOCs at the following locations:

- Surface water sampling locations (SW-03, SW-06, SW-12)
- Where the creek passes under Lewis Drive
- General area of the 45 vertical biosparge wells

At each location, a reading will be taken once the PID readout has stabilized, or after 3 minutes, whichever is sooner. Ambient air monitoring results will be maintained in a logbook or on data sheets. Ambient air monitoring will be performed for a minimum of 96 hours prior to operating the biosparging system. After startup of the biosparging system, the frequency of ambient air monitoring will be:

- Daily during the first week of biosparging system operation
- Three times per week until one week after the maximum desired air flow has been achieved in the biosparging system (anticipated to be a month after startup)
- Monthly for the second and third months of biosparging system operation
- Quarterly thereafter when the biosparging system is operating

The frequency of air monitoring will reset if there are major changes to biosparging system operation, or after a prolonged period (e.g. more than two months) when the system is not operated.

## Air Monitoring Reporting

Results of air monitoring will be provided to SCDHEC in data submittals weekly for the first month, monthly for the next two months, and quarterly thereafter. Data submittals will consist of a brief narrative addressing the monitoring period, type of data collected, map with sampling station locations, and tables of results. Quarterly reports will provide a discussion of the results and recommendations for warranted changes to the monitoring plan.

Data submittals will be provided at the following frequency:

- Weekly emails during the first month of air monitoring (followed up by hardcopy submittal)
- Monthly emails during the second and third months of air monitoring (followed up by hardcopy submittal)

Quarterly reports will be provided to SCDHEC within one month following the end of the air monitoring period covered by the report.

## Response to Detections

The response to detections of VOCs or hydrogen sulfide in air will depend on the nature, magnitude, and relative location of the detection.

If VOCs are detected by air monitoring at locations above biosparging wells will be responded to by shutting off or decreasing the air flow rate to wells. Supplemental air monitoring results at the same location will be reviewed to verify that the reduced air flow to biosparging wells eliminates the VOC detections.

If VOCs are detected at locations away from biosparging wells, observations will be made to search for indications of air discharges at ground surface or other sources of the VOCs. The specific response to these potential VOC sources will be developed based on conditions encountered in the field.



# MiniRAE 3000

Portable Handheld VOC Monitor



The MiniRAE 3000 is a comprehensive handheld VOC (Volatile Organic Compound) monitor that uses a third-generation patented PID technology to accurately measure more ionizable chemicals than any other device on the market. It provides full-range measurement from 0 to 15,000 ppm of VOCs.

The MiniRAE 3000 has a built-in wireless modem that allows real-time data connectivity with the ProRAE Guardian command center located up to 2 miles (3 km) away through a Bluetooth connection to a RAELink 3\* portable modem or optionally via Mesh Network.

## KEY FEATURES

- Third-generation patented PID technology
- VOC detection range from 0 to 15,000 ppm
- 3-second response time
- Humidity compensation with built-in humidity and temperature sensors
- Six-month datalogging
- Real-time wireless built-in – Bluetooth (and optional RAELink3 portable modem) or Mesh Network support
- Large graphic display with integrated flashlight
- Multi-language support with 10 languages encoded
- IP-67 waterproof design

## APPLICATIONS

- Oil and Gas
- HazMat
- Industrial Safety
- Civil Defense
- Environmental and Indoor Air Quality

- Highly accurate VOC measurements
- Patented PID sensor
- Low maintenance—easy access to lamp and sensor
- Low cost of ownership
- 3-year 10.6eV lamp warranty



Workers can quickly measure VOCs and wirelessly transmit data via Bluetooth or optional Mesh radio.

\*RAELink 3 modem is sold separately.



# MiniRAE 3000

Portable Handheld VOC Monitor



## SPECIFICATIONS

### Instrument Specifications

Size	10" L x 3.3" W x 2.5" H (25.5 cm x 7.6 cm x 6.4 cm)
Weight	26 oz (733 g)
Sensors	Photoionization sensor with standard 10.6 eV or optional 9.8 eV or 11.7 eV lamp
Battery	<ul style="list-style-type: none"><li>• Rechargeable, external, field replaceable Lithium Ion battery pack</li><li>• Alkaline battery adapter</li></ul>
Running time	16 hours of operation (12 hours with alkaline battery adapter)
Display Graphic	4 lines, 28 x 43 mm, with LED backlight for enhanced display readability
Keypad	1 operation and 2 programming keys, 1 flashlight on/off
Direct Readout	<ul style="list-style-type: none"><li>• Instantaneous reading</li><li>• VOCs as ppm by volume (mg/m<sup>3</sup>)</li><li>• High values</li><li>• STEL and TWA</li><li>• Battery and shutdown voltage</li><li>• Date, time, temperature</li></ul>
Alarms	<ul style="list-style-type: none"><li>• 95dB at 12" (30 cm) buzzer and flashing red LED to indicate exceeded preset limits</li><li>• High: 3 beeps and flashes per second</li><li>• Low: 2 beeps and flashes per second</li><li>• STEL and TWA: 1 beep and flash per second</li><li>• Alarms latching with manual override or automatic reset</li><li>• Additional diagnostic alarm and display message for low battery and pump stall</li></ul>
EMC/RFI	<ul style="list-style-type: none"><li>• Compliant with EMC directive (2004/108/EC)</li><li>• EMI and ESD test: 100MHz to 1GHz 30V/m, no alarm</li><li>• Contact: ±4kV</li><li>• Air: ±8kV, no alarm</li></ul>
IP Rating	<ul style="list-style-type: none"><li>• IP-67 unit off and without flexible probe</li><li>• IP-65 unit running</li></ul>
Datalogging	Standard 6 months at one-minute intervals
Calibration	<ul style="list-style-type: none"><li>• Two-point or three-point calibration for zero and span</li><li>• Calibration memory for 8 calibration gases, alarm limits, span values and calibration dates</li></ul>
Sampling Pump	<ul style="list-style-type: none"><li>• Internal, integrated flow rate at 500 cc/min</li><li>• Sample from 100' (30m) horizontally or vertically</li></ul>
Low Flow Alarm	Auto pump shutoff at low-flow condition
Communication & Data Download	<ul style="list-style-type: none"><li>• Download data and upload instrument set-up from PC through charging cradle or optional Bluetooth™</li><li>• Wireless data transmission through built-in RF modem</li></ul>
Wireless Network	Mesh RAE Systems Dedicated Wireless Network
Wireless Range (Typical)	<ul style="list-style-type: none"><li>• EchoView Host: LOS &gt; 660 ft (200 m)</li><li>• ProRAE Guardian &amp; RAE Mesh Reader: LOS &gt; 660 ft (200 m)</li><li>• ProRAE Guardian &amp; RAE Link3 Mesh: LOS &gt; 330 ft (100 m)</li></ul>
Safety Certifications	<ul style="list-style-type: none"><li>• US and Canada: CSA, Classified as Intrinsically Safe for use in Class I, Division 1 Groups A, B, C, D</li><li>• Europe: ATEX II 2G EEx a IIC T4</li></ul>
Temperature	-4° to 122° F (-20° to 50° C)
Humidity	0% to 95% relative humidity (non-condensing)

Contact RAE Systems for country-specific wireless approvals and certificates.  
Specifications are subject to change.

Attachments	Durable bright yellow rubber boot
Warranty	3 years for 10.6 eV lamp, 1 year for pump, battery, sensor and instrument
Wireless Frequency	ISM license-free band, IEEE 802.15.4 Sub 1GHz
Wireless Approvals	FCC Part 15, CE R&TTE, Others
Radio Module	Supports Bluetooth or RM900

### Sensor Specifications

Gas Monitor	Range	Resolution	Response Time T90
VOCs	0 to 999.9 ppm 1,000 to 15,000 ppm	0.1 ppm 1 ppm	< 3 s < 3 s

### MONITOR ONLY INCLUDES:

- MiniRAE 3000 Monitor, Model PGM-7320
- Wireless communication module built in, as specified
- Datalogging with ProRAE Studio II Package
- Charging/download adapter
- RAE UV lamp, as specified
- Flex-I-Probe™
- External filter
- Rubber boot
- Alkaline battery adapter
- Lamp-cleaning kit
- Tool kit
- Operation CD-ROM
- Operation and Maintenance manual
- Soft leather case

### OPTIONAL CALIBRATION KIT ADDS:

- 100 ppm isobutylene calibration gas, 34L
- Calibration regulator and flow controller

### OPTIONAL GUARANTEED COST-OF-OWNERSHIP PROGRAM:

- 4-year repair and replacement guarantee
- Annual maintenance service

#### CORPORATE HEADQUARTERS

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DS-1018-05 02/16

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